

SCIENCE AND SUSTAINABILITY PROGRAMS IN PRISONS:
ASSESSING THE EFFECTS OF PARTICIPATION ON INMATES

by

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ABSTRACT

Science and Sustainability Programs in Prisons:
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This paper examines the effects of participating in prison-based science and sustainability programs on inmates. Washington's Sustainability in Prisons Project (SPP) hosts environmental and conservation work programs that incorporate elements shown by previous research to inspire positive changes in inmate attitudes. Many of these changes are associated with reductions in recidivism, including educational and vocational training, therapeutic benefits, and opportunities to contribute to the outside community. Participants in a statewide survey of inmates (n=293) included those with nine sustainability-related job types and a control group with non-sustainability-related jobs. Dunlap et al.'s (2000) New Ecological Paradigm Scale was used to assess environmental attitudes. An original "Life & Work" questionnaire assessed attitudes on pursuing education, work satisfaction, skill development, interpersonal relationships, outlook for the future, and health. Results from the Washington Department of Corrections (WDOC) Offender Needs Assessment were also examined for changes over time by participant job type. Questionnaire results show that offenders whose jobs involved more education/training, work with living things, and opportunities to contribute to the community tended to score higher on the NEP, indicating that these elements are associated with more pro-environmental attitudes. As pro-environmental attitudes are correlated with pro-social attitudes (Bamberg & Möser 2007; Hines et al. 1987), SPP and WDOC might consider incorporating more of these elements into other work programs.

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Chapter 1

The Sustainability in Prisons Project (SPP) is a partnership founded by the Washington State Department of Corrections (WDOC) and The Evergreen State College. Its mission is

“to bring science and nature into prisons. We conduct ecological research and conserve biodiversity by forging collaborations with scientists, inmates, prison staff, students, and community partners. Equally important, we help reduce the environmental, economic, and human costs of prisons by inspiring and informing sustainable practices.” (LeRoy et al. 2012)

The SPP model has contributed to substantial reductions in operational costs at the WDOC. Sustainable operations initiatives have both saved the agency money and reduced the agency’s total carbon emissions by approximately 40% since 2005 (Warner 2013). The partnership also offers conservation and restoration job placements for some offenders within WDOC facilities. Other sustainability-related jobs include: recycling (both of the traditional paper, glass, cardboard and aluminum as well as books and mattresses), horticulture training and work placements, community service crews (which often do natural resources projects), forestry crews working with the Washington Department of Natural Resources (DNR), and bicycle refurbishment (wherein offenders repurpose bicycles and wheelchairs to be donated to community groups that distribute them to people in need). The SPP has identified the need for further evaluation of the effects of its programming on inmates, staff, and scientists as a priority for future research (LeRoy et al. 2012). Graduate students who have worked with and done

research on the SPP have expressed the need for longer-term impacts of the SPP's education and conservation programs (Clarke 2011, Weber 2012).

The SPP has garnered nationwide and international interest, as evidenced by articles on the AP wire (2012) and in the New York Times (2012), visits from European media crews, and requests for information from around the world. In September 2012, the SPP hosted a National Network expansion meeting with academic and corrections professionals from across the country, and funding from the National Science Foundation (Grant # NSF DRL 1204448). This was followed up by a March 2013 meeting in Salt Lake City, Utah, where representatives from nine state and county correctional systems presented "action plans" for instituting SPP programming in their facilities. One need identified at that meeting was that of consistent evaluation of SPP programming for effects on recidivism, in-prison safety, and other effects on participating inmates.

Literature Review

A brief review of the literature covers in-prison programs designed to reduce recidivism and increase inmates' potential for success outside prison. The review begins with a short discussion of traditional classroom education and vocational training programs in prisons, as well as several types of programs that give inmates the opportunity to contribute to the community outside prison walls, such as refurbishing bicycles for needy children. It then gives an overview of environmental education for adults in the general population before examining several innovative prison-based programs involving work with plants or animals and the therapeutic effects that participation in such programs can have on incarcerated people.

Background: Incarceration and Recidivism in the United States and in Washington State

The rate of incarceration in the United States is the highest in the world, with one percent of the country's population behind bars (Guerino et al. 2011). In 2011, more than 1.5 million people were incarcerated in U.S. state or federal prisons (Carson & Sabol 2012), and the number of people under correctional supervision (including those on probation or parole and those held in jails) was 6.98 million (BJS 2012). Ninety-seven percent of the inmates in American prisons will be released one day (BJS 2012). Nationally, more than 70% of those who have been released will be rearrested, with 49.6% reconvicted within three years (BJS 2011). In Washington State, recidivism rates are lower than the national average, with 31% of offenders released in 2006 reconvicted within three years (Evans et al. 2010). There has been a great deal of research into recidivism and ways to reduce it in the US.

Reducing Recidivism through Education, Vocational Training, and Opportunities to Contribute to Society: Evidence-Based Prison Programs

It is well-documented that education significantly reduces the probability of incarceration in the first place (Lochner & Moretti 2004). Part of society's return on investment for keeping students in high school through graduation includes crime reduction (Lochner & Moretti 2004). Eighteen percent of the U.S. population over the age of 18 has not finished high school, but among state prison inmates, 40% did not finish high school (Harlow 2003). Nationally, 81% of prison inmates in 1992 who lacked a high school or GED (General Education Development) diploma were repeat offenders (Haigler et al.

1994). The logic behind prison education programs is that increased education levels will translate into reductions in criminal behavior (Cecil et al. 2000).

Since the 1970s, scholars have been arguing over the effectiveness of education and vocational programs in prisons. In a literature review including studies of 231 programs, Martinson (1974) infamously declared that “with few and isolated exceptions, the rehabilitative efforts that have been reported so far have had little appreciable effect on recidivism.” Martinson (1974) and his findings have been both occasionally supported by subsequent research and vehemently refuted (see below).

Several studies in the 1970s and 1980s supported Martinson’s (1974) claims. Linden and Perry (1983) found that, while educational programs for incarcerated people may translate into improvements in learning, they do not necessarily have an impact on recidivism or employment post-release. A 1973 case study on an educational program in a Pennsylvania state prison found that inmates who participated in the program experienced “significant psychological changes,” but that these did not translate into differences in post-prison behavior when compared to a control group (Lewis, 1973). Results from a 1974 study in a women’s prison indicated that recidivism rates were lower among inmates who had finished their GEDs while incarcerated, but the difference between the GED group and a control group was not statistically significant (Johnson et al. 1974). Regardless of other positive outcomes, none of these programs would survive a review of evidence-based programming, which considers crime prevention through recidivism reduction its primary goal (Mackenzie 2000).

Nevertheless, a variety of more recent studies support the assertion that programs for education and vocational training in prisons do work toward the ultimate goal of

reducing recidivism (Vacca 2004, Mackenzie 2006, Drake et al. 2009), in addition to contributing to better employment prospects. A meta-analysis of studies from five states' corrections departments together with data from the Bureau of Justice Statistics showed lower recidivism rates among offenders who had participated in GED and postsecondary education programming as well as vocational education while incarcerated (Jancic 1998). A West Virginia study showed that inmates who had participated in vocational and GED programming had a recidivism rate of 6.71%, while recidivism among inmates who did not participate in educational or vocational training was 26% (Gordon & Weldon 2003). A larger study of 760 releasees, some of whom had participated in academic and/or vocational training programs and some who had not, showed lower criminal activity and higher employment rates among the vocational and vocational/academic groups after 12 months (Schumacker 1990).

Recidivism rates for groups of offenders who have participated in academic programs are often lower than those of offenders who do not partake in educational programming (O'Neil 1990). In their study of parolees, Holloway and Moke (1986) found a negative linear relationship between level of educational achievement while incarcerated and recidivism rates. A recent study of more than 2,000 inmates in Indiana found a 67.8% recidivism rate among those who did not participate in education programs while they were incarcerated, and a 29.7% recidivism rates for education-program participants (Nally 2012). A three-state study of more than 3,000 offenders published in 2003 showed similarly lower recidivism rates among those who had participated in educational programs while incarcerated (Steurer & Smith 2003).

Similarly, participation in vocational or work-training programs has also been associated with lower recidivism rates. In Canada, inmates who participated in vocational or work-training programs during the 1980s were less likely to be rearrested and more likely to be employed one year after release than were members of a comparison group (Saylor & Gaes, 1996). Gordon and Weldon's (2003) West Virginia study showed a recidivism rate of 8.75% for vocational program completers, considerably lower than inmates who did not participate in any sort of educational program (26%), but not as low as those who had undertaken both academic and vocational training (6.71%).

Despite these hopeful results, researchers have identified a need for more effective training programs aimed at reducing recidivism (Gendreau 1996). According to one study, essential components of successful rehabilitation programs for offenders include: 1) a sound conceptual model, 2) multifaceted programming, 3) targeting "criminogenic needs," 4) the responsivity principle, 5) roleplaying and modeling, and 6) social cognitive skills training (Antonowicz & Ross 1994). Bayliss (2003) adds to this list in his argument for a more liberal definition of prison education, elucidating specifically the importance of including increasing involvement with the outside community.

While reducing recidivism is the foremost goal of evidence-based programming such as academic and vocational training in prisons, other objectives are also important. One important goal is a focus on the positive use of offenders' time during incarceration. The intention is to avoid "warehousing" (Enocksson 1981) and instead prioritize rehabilitation. SPP co-director Dan Pacholke argues for going beyond rehabilitation and

instead focusing on positive offender change, working toward releasing each person in a better mental, emotional, and social state than the one in which s/he arrived in prison (Dan Pacholke, pers. communication, April 4, 2013).

Other goals of effective programs in prisons include increasing safety and contributing to a more positive environment inside prisons through reductions in offender idleness and violence (Vacca 2004). Further, successful job- and vocational skills-training programs intended to improve an offender's employability can lead to reductions in recidivism, since employed ex-offenders are generally less likely to recidivate (Myers 1980); this is especially true for offenders older than 27 years of age (Uggen 2000).

Studies focused on post-release outcomes associated with recidivism, such as gainful employment, also make a strong case for offering educational programs in prisons. Holloway and Moke (1986) found a positive linear relationship between the level of education an inmate attains while incarcerated and his likelihood of finding and keeping a job while on parole. Tyler and Kling (2006) found that racial/ethnic minority inmates who participated in GED programming while incarcerated earned about 15% more money during their first three post-release years than inmates who did not participate in educational programs (although these gains were not shown to last beyond this timeframe). Steurer and Smith (2003) also found that people who had participated in correctional education programs while incarcerated earned higher incomes post-release than non-participants. A study in Indiana found that employment status and educational level, along with age of the offender, were the three most important predictors of recidivism, regardless of crime type (Nally et al. 2012).

Increased employability for offenders and reduced recidivism translate into lower costs for taxpayers (Przybylski 2008). When it was determined that new prisons would need to be constructed in Washington in order to house a growing inmate population, the Washington Institute for Public Policy conducted a cost-benefit analysis of vocational training programs. It found that the reductions in recidivism provided by these programs outweighed their costs of implementation (Aos et al. 2006).

Bayliss's (2003) argument for increased engagement with the outside community (mentioned above) echoes calls by researchers who have found relationships between community contribution or service programs and reduced recidivism. Studies have shown that prison- or community-based service programs for offenders often result in positive outcomes for incarcerated offenders, parolees, and the outside community (Maher 1994, Pranis 1997). Although these types of service programs do not necessarily incorporate an academic educational component, they often involve vocational training that may be useful to offenders seeking employment upon release (Pranis 1997).

Adult Education, Outside and in Prisons

Very little peer-reviewed literature on environmental education in prisons exists. The Sustainability in Prisons Project (SPP) is a novel collaboration between The Evergreen State College in Olympia, Washington and the Washington Department of Corrections, with a mission to "to bring science and nature into prisons" (LeRoy et al. 2012). The SPP is an example of effective collaborative environmental education for incarcerated students (Ulrich & Nadkarni, 2009). Offenders may engage with SPP programs at several levels, from attending monthly lectures to participating in work programs raising

endangered species. Few studies have examined this new phenomenon of offering various forms of environmental education to incarcerated students.

A review of the research on adult environmental education for the general population reveals several common themes. The first is the importance of acknowledging the interconnectedness of humans and the rest of nature (Clover 1995, Hill 2003, Lawrence 1995). Secondly, problems arise due to the fact that most environmental education of adults happens via the popular media (Bélanger 2003, Clover 1995, Lawrence 1995). Finally, literature on adult-focused education, especially environmental education, emphasizes a connection between learning and social action (Jansen 1995). A brief discussion of these themes will follow an overview of adult general and environmental education for the public and for prison inmates.

General Education for Adults

General adult education programs in the United States have been offered throughout the past century, with or without concentrations on a specific subject. Public libraries in the United States originally focused on the education of adults, redoubling their efforts around this goal (over other aims including recreation and reference) in the 1920s (Lee, 1966). Courses preparing adult high school dropouts to take the General Educational Development (GED) test were started at the request of the U.S. military in 1942 (GED Testing Service, 2012). Current public library courses include computer skills classes and courses teaching English to Speakers of Other Languages (ESOL) for recent immigrants. English as a Second Language (ESL), ESOL, and GED courses are widely

offered in prisons, and the attainment of a GED while incarcerated is associated with lower rates of recidivism (Nuttall et al. 2003).

General adult education has historically been linked, at least in part, to addressing social problems and contributing to positive change in society (Hill 2003). Darlene Clover, a longtime scholar of adult education for social change, explains that adult education recognizes adult learners' unique experiences, time constraints, goals, and different learning needs and methods (Clover 1995). Environmental education is often linked to social activism, or is perceived as such (Field 1989). A few educators and groups have begun to bridge the gap between general adult education, environmental education, and education for social change (Clover 1995).

Adult Environmental Education

Although conservation organizations and other environmental groups have conducted public education campaigns for more than 100 years (Jansen 1995), adult environmental education has been less formal than the environmental education of children and university students. Education of these more traditionally school-aged groups has been institutionalized since the early 1970s (Robottom & Hart 1993). Field (1989) speculated that "perhaps educators were reluctant to become involved in social activism or assumed generally well-educated environmentalists would answer their own educational needs."

Conservation organizations continue to prioritize education but are often frustrated by the phenomenon of "preaching to the converted," as "the same congregation of white, educated, well-to-do believers repeatedly receive the same message, numbing

their interest and cultivating apathy and a sense of futility” (Jansen 1995). Nevertheless, researchers believe that environmental popular education is essential for environmental justice (Hill 2003) and environmental and social sustainability (Bélanger 2003, Jansen 1995).

Walter (2009) argued the following:

“[the global] ecological crisis has given a new sense of urgency to environmental education for adults (and children). With adult education’s strong roots in community development, popular education, and social justice... the field is well positioned to lead the way forward in fostering environmental awareness and action among adults, social institutions, and social movements.”

Bélanger (2003) also called for immediate action in adult environmental education, citing contemporary ecological risks: “[Adult environmental education] is critical. This recognition is certainly the most significant shift that could be observed at the UN Conference on Environment and Development (Earth Summit) in Rio de Janeiro in 1992 and in the Agenda 21 resolution that resulted from it.” And the National Institute of Adult Continuing Education (NIACE) in Great Britain insists that it would be hazardous to simply "wait for the present generation of school and college students to begin applying their newly-won environmental awareness [instead] we must educate those who are making vital decisions now" (NIACE 1993, cited in Bélanger 2003).

Despite the obvious urgency felt among educators, researchers, and policymakers worldwide about the necessity of environmental education for adults, few forms of adult environmental education have been researched and included in academic literature.

Clover (1995, 2000) has written extensively about the radical philosophical tradition of adult environmental education, which takes its most popular form in the environmental protest movements of the late 1960s and 1970s (Walter 2009). A second philosophical tradition of adult environmental education, termed “progressive” by Walter (2009), emphasizes lifelong learning, which Bélanger (2003) agrees is essential for enacting lasting social and political change. Examples of progressive adult environmental education include the well-known Outward Bound program and other experiential educational programs, but even these are understudied (Walter 2009). An exception is Martin’s (2013) study, which examines the impacts of participation in a conservation corps on environmental attitudes later in life. Martin’s (2013) work centers on Tanner’s (1980) study of “significant life experiences” related to the natural environment, which indicates that meaningful connections with nature can be made during childhood or as adults.

Clover (1995) points out that most people making decisions that affect the health of others around them and the biosphere are adults who “are not enrolled in educational or environmental programs, but are educated primarily through the media.” Bélanger (2003) points to “community libraries, museums, parks, zoos, and gardens” as alternative sources for information about environmental issues. Indeed, Balmford et al. (2007) studied zoos as places where adults learn about conservation and where their attitudes toward it may be changed, and Churchman’s (1987) meta-analysis of zoos’ educational role examined the educational components and impacts of zoos over much of the twentieth century. Studies have been conducted on the effectiveness of environmental education in parks on changing tourists’ attitudes toward the environment (Orams 1997);

however, these types of “local nonformal education” are not well-represented in the academic literature (Taylor 2006).

In contrast, large national and international news organizations have the ability to reach far more people than local institutions such as zoos, museums, and parks. However, mass-media sound bytes and often sensationalized stories designed to maximize reader- or viewership do not satisfy the need for public education about environmental issues. Instead, this “top-down” transmission of ideas via mass media diminishes “people’s curiosity, engagement, and creativity” and “gives people few opportunities to become involved in significant learning that could lead to individual and collective action” (Bélanger 2003).

The Connection Between Environmental and Social Attitudes and Behaviors

Hall and Clover (1997) argue that today’s environmental education promotes an understanding of “the inter-connectedness of life,” whereas conventional environmental education in the past sought primarily to conserve and protect wilderness areas. This more holistic view encompasses the political, cultural, societal, and natural worlds as intertwined, and acknowledges that education for the environment must take politics, culture, and society into account. This inclusiveness is essential to the learning process (Hill 2003, Orr 1992), and the “inter-relatedness of environmental values with community and human values” can lead to positive social action (Jansen 1995).

Acknowledging that good education involves engaging the whole person, Bélanger (2003) argued that environmental education must occur “through and within

(not just about and for) the environment.” This is one of his four key principles for “an ecological reorientation of education,” which also include foci on lifelong learning, local issues, and interaction among learners. These principles further the five international objectives for environmental education set forth by the Tbilisi Intergovernmental Conference on Environmental Education (1977), which include awareness, sensitivity, attitudes, skills, and participation (Tbilisi conference declaration 1978).

Hungerford and Volk (1990) used the Tbilisi objectives to create their classic definition of an environmentally responsible citizen. The traditional thinking has been that the more people know about the environment, the better their behavior related to it will be (Hungerford & Volk 1990, Walter 2009), but this is not always the case. Smyth (1995) pointed out that simple education is only one factor influencing how people behave toward their environment, and this factor interacts with others such as the challenge of meeting basic needs, laws, customs, demands from employment, and personal ambitions.

Pro-environmental attitudes and behaviors have been correlated with pro-social attitudes in previous studies (Bamberg & Möser 2007; Hines et al. 1987; Milfont & Gouveia 2006, Van Vugt & Samuelson, 1999). Hines et al. (1987) conducted a meta-analysis of studies concerning the relationship between pro-environmental behavior and sociological variables. Variables associated with responsible environmental behavior included knowledge (of issues and of action strategies), locus of control, attitudes, sense of responsibility, and verbal commitment.

Bamberg & Möser (2007) followed up on Hines et al.'s (1987) study and found similar correlations between pro-environmental behavior and social variables, noting especially attitude, behavioral control, and personal moral norms. These researchers argue that pro-environmental behavior results from “a mixture of self-interest... and of concern for other people, the next generation, other species, or whole ecosystems (Bamberg & Möser 2007). Their results indicated that respondents’ mean “perceived behavioral control,” attitude (general positive or negative), and moral norms (which consist of feelings of guilt, social norm, internal attribution, and problem awareness) together can explain 52% of the variance in intention to act pro-environmentally (Bamberg & Möser 2007).

Clearly, anti-social attitudes are a major factor in criminal conduct (Andrews 1995). It is unsurprising that research on parolees has shown that pro-social behaviors are a major component of successful re-entry to the outside-prison community (Bucklen & Zajac 2009). Therefore, encouraging the development of pro-social attitudes among prison inmates may help to reduce recidivism.

Horticulture Education in Prisons

One form of both environmental and experiential education taking root in prisons is horticultural education. Gardening programs in jails and prisons have received a fair amount of attention in books and the popular press. New York’s Rikers Island, the largest correctional complex in the United States, has hosted a gardening program run by the Horticultural Society of New York since 1996 (Jiler 2006). Usually associated with horticulture education programs, Master Gardener certification programs are or have

been available to certain inmates at facilities in South Carolina, Oregon, Texas, and a number of other states (Flagler 1992; Polomski et al. 1997; Lindemuth 2007). In Washington, prison horticultural education is offered through partnerships with local community colleges and the SPP.

Some prison Master Gardener programs have been formally studied or evaluated in academic literature. Research on horticulture programs in prisons has shown that participation can improve substance-abusing inmates' sense of control and life satisfaction (Migura et al. 1997). Southern Nevada inmates who completed a horticultural training program also reported an improved sense of control over their lives and improved interpersonal relationships (O'Callaghan et al. 2010), indicating a therapeutic effect. Other effects of horticultural training programs include the inspiration to enroll in college after release (O'Callaghan et al. 2010).

As a type of vocational training, horticulture programs have been associated with lower rates of recidivism for alumni participants. The Garden Project at the San Francisco County Jail, for example, boasts participant recidivism rates of less than half that of non-participants (Van Cleef 2002). However, more studies on post-release outcomes of Master Gardener and other horticulture therapy and training programs are needed (Polomski et al. 1997).

Nature therapy

Related to horticultural education and its potentially therapeutic effects is the concept of nature therapy (or "ecotherapy"). Nature therapy may take place formally or informally,

in a variety of institutions. Studies have been conducted in health care settings, workplaces, and educational situations.

Ulrich (1999) provides a thorough literature review of nature therapy in health care institutions, showing that mere exposure to the outdoors or even images of trees, flowers, and other greenery can have positive health effects. His review discusses the rehabilitative impact of exposure to gardens or natural scenery on outcomes such as stress and sense of control (Ulrich 1999). Many other studies on ecotherapy have been undertaken with foci on health care or rehabilitation centers. The research indicates that exposure to "natural" views and even fragrances can result in effects such as lower blood pressure, a decrease in depression, and faster and more complete recovery after surgery (Chalquist 2009, Ulrich 1984).

Ecotherapy can also take place in the workplace and in educational settings, with similarly positive effects on attention and problem-solving abilities (Chalquist 2009). Participants in a Texas study reported decreased boredom and more positive perceptions of assigned work in a classroom with windows than in a room without windows (Kim 1998).

Fewer studies consider the therapeutic effects of nature in prison settings, but at least two studies have found that the view from a cell window can affect inmate health (Moore 1981; West 1985). West (1985) reported that inmates with views of natural settings reported fewer stress-related physical symptoms than did inmates with views of prison buildings, and Moore (1981) found that views of more natural settings were associated with a lower frequency of health complaints.

Nadkarni et al. (unpublished data) provide a more extensive review of therapeutic and other benefits to exposure to nature and nature imagery in a variety of settings, including prisons. The researchers detail plans for pilot studies in prisons in Oregon and Washington (Nadkarni et al., unpublished data), results of which will contribute significantly to the literature on nature therapy in prisons.

Animal programs in prisons

Prisons in most U.S. states now host animal rehabilitation and training programs, most of which have been established within the last 15 years (Furst 2006). Most of these programs involve inmates in training dogs, preparing them either for work as service animals or adoption as pets (Furst 2006), but cat programs are also present in prisons and jails in Washington, Indiana, Nebraska, and Switzerland, among others. Various animal-training programs can be found in prisons in Japan, Canada, South Africa, and in several European countries. Livestock such as cows, pigs, horses, and chickens are also used in many prison farms (Furst 2006).

All twelve Washington State prisons have dog-training programs that prepare pets for adoption or train dogs as service animals (WDOC 2012). For example, Washington Corrections Center for Women hosts the Prison Pet Partnership (PPP), which gives inmates experience grooming cats and dogs and can lead to a Pet Care Technician Certificate through the American Boarding Kennel Association. The PPP prepares dogs for adoption as pets or work as service dogs (PPP, 2012). Stafford Creek Corrections Center engages inmates as trainers for dogs who will be adopted as pets and as service animals for people with disabilities (Chris Idso, personal communication, September 16,

2012), and inmates at Cedar Creek Corrections Center train dogs for service with military veterans suffering from post-traumatic stress disorder or traumatic brain injuries (Andrea Martin, personal communication, May 16, 2013).

Although research into the effects of participation in animal programs in prisons is relatively new and large-scale studies on the subject are rare, the existing literature supports the idea that animal programs in prisons are beneficial to both inmate participants and the outside community (Harkrader et al., 2004). Deaton (2005) found that working with animals in prisons can be “highly therapeutic and rehabilitative” in addition to providing vocational training for inmates. Strimple (2003) found that inmates working in dog- and horse-training programs learned “life-enhancing skills” and that participation led to a reduction in recidivism rates.

Although working with domesticated animals is now common in prisons, working with wildlife is rare. To-date, no studies have been undertaken on the captive rearing of endangered animals in Washington prisons, and no such programs are recorded in the scientific literature (Ulrich & Nadkarni, 2009). Nevertheless, the SPP’s conservation and rearing programs have been widely reported in the popular press (<http://sustainabilityinprisons.org/press/>). While the SPP’s endangered species rearing projects share certain key features with the animal-training programs in the literature, fundamental differences should be recognized. For example, endangered species rearing programs include a dedicated scientific component, giving offenders the opportunity to learn skills such as data management, recordkeeping, and hypothesis testing. Importantly, the programs involve the collaboration of biologists specializing in the species of concern. As with the dog- and horse-training programs, inmates care for

animals knowing that they will leave the facility one day, but the animals in SPP's endangered-species rearing programs are headed for ecological restoration projects, providing inmates with a sense of contributing to ecosystem rehabilitation.

The SPP's conservation and restoration programs have grown, in part, from the theoretical and practical basis of research and experience outlined in this literature review. Programs involving animals, plants, and various types of education are in place in prisons throughout the United States. In addition to providing academic and/or vocational training, some of these programs have been associated with therapeutic outcomes. In doing so, programs like those offered by SPP work toward the complementary goals of reducing recidivism, increasing in-prison safety, and promoting positive personal change in offenders.

Introduction and Literature Review

The Sustainability in Prisons Project (SPP) is a partnership between the Washington Department of Corrections (WDOC) and The Evergreen State College (TESC) with the goal “to bring science and nature into prisons” (LeRoy et al. 2012). The SPP engages scientists, undergraduate and graduate students, prison inmates and community partners in meaningful ecological restoration, conservation, and research work. SPP work programs involving inmates include captive rearing of endangered species (the Taylor’s checkerspot butterfly and Oregon spotted frog), and ecological restoration work involving prairie plant propagation in nurseries and subsequent outplanting. Other SPP-related work assignments include recycling, community service, composting, beekeeping, dog training, groundskeeping, horticulture, and forestry work crews. In addition to work programs, SPP provides educational programming in the form of monthly lecture series and an environmental literacy curriculum.

Various programs in prisons are designed to reduce recidivism, contribute to safer in-prison environments, and provide offenders with the opportunity to make positive personal changes that will increase their potential for success outside prison. Academic and vocational education programs have been correlated with reductions in recidivism (Vacca 2004, Mackenzie 2006, Drake et al. 2009), but researchers continue to call for more effective training programs aimed at recidivism reduction (Gendreau 1996). Increasing offenders’ employability through education and contributing to higher rates of

released offenders' employment are also associated with lower recidivism rates (Holloway & Moke 1986, Tyler & Kling 2006), which translate into lower costs for taxpayers (Przybylski 2008).

As one type of education for adults, environmental education should provide an understanding of "the inter-connectedness of life" (Hall and Clover 1997). SPP educational programming has been shown to increase inmates' interest in environmental issues and inspire more pro-environmental behaviors (SPP, unpublished data). Pro-environmental attitudes and behaviors are associated with pro-social attitudes (Bamberg & Möser 2007, Hines et al. 1987, Milfont & Gouveia 2006). Since anti-social attitudes are associated with criminal activity (Andrews 1995), encouraging pro-social attitudes should be a goal of prison work and educational programming to further the goals of promoting safe prison environments and reducing recidivism.

Bayliss (2003) argues that prison education would be improved by increasing inmate learners' involvement with the outside community. Prison horticulture education programs, community service crews, and animal-training programs have begun to involve offenders with outside communities, and each of these also typically involves offenders in working with living things. In addition to providing vocational training, horticulture education has been associated with therapeutic effects such as improvement of sense of control and life satisfaction (Migura et al. 1997). Animal programs are beneficial to offenders and the community, also providing therapeutic functions to offender participants (Harkrader et al. 2004, Deaton 2005). The therapeutic effects of nature and work with living things have been studied in health care and work settings (Ulrich 1999, Chalquist 2009), but full-scale studies have yet to be conducted in prisons.

This study represents the first attempt to examine the effects of participation in SPP programs on inmates in Washington prisons. It hypothesizes that offenders who are engaged in SPP programs, especially those involving high levels of education/training, work with living things, and opportunities to contribute to the outside community, will exhibit more pro-environmental attitudes than offenders working in jobs unrelated to sustainability. It further aims to explore the possibility of existing relationships between scores on a test of environmental attitudes and a variety of demographic and crime-related variables, as well as with the outcomes of the WDOC's Offender Needs Assessment.

Methods

I used a large-scale voluntary survey to test for a variety of effects of participation in science- and sustainability-related work programming on inmate workers (n=286). Field research was conducted using written questionnaires on-site at nine Washington prisons during the winter of 2013. This section provides detail on the creation of two survey tools, research approval process, character of the sample, study implementation, and data analysis methodology.

Main Survey Tool

I sought to create a reliable survey tool that would assess environmental attitudes and beliefs as well as evaluate offenders' coping skills, interest in continuing their education, level of satisfaction with their work environment and relationships (inside and outside prison), sense of well-being, and prospects for the future. To do so, I used a hybrid

questionnaire of existing, validated survey tools and original questions.

I included the New Ecological Paradigm (NEP)(Dunlap et al. 2000) questionnaire in its entirety (with some small adjustments; see Chapter 3). The 15-item Likert-scale NEP is one of the most widely used measures of environmental attitudes and beliefs (Dunlap et al. 2000); by some accounts it is *the* most widely used measure of environmental concern in the world, having been used in hundreds of studies in dozens of countries in its three forms since 1978 (Dunlap 2008). The NEP has been modified several times since it was first proposed as the 12-item New Environmental Paradigm in 1978; the modifications reflect changing environmental concerns and priorities. The New *Ecological* Paradigm, used for this study, is the latest revision, from 1990. It was found to possess a high level of internal consistency (with an alpha of 0.83), indicating it can be treated as a single measure of environmental attitudes (Dunlap et al. 2000, Dunlap 2008).

I also wrote 32 original questions to create a Likert-scale “Life & Work” (L&W) questionnaire. The L&W items were based on items and domains from the Washington DOC’s Offender Needs Assessment (ONA), a tool used to evaluate each offender upon his or her entry into the state corrections system and to identify appropriate programming for him or her. In addition to a static risk assessment based on conviction history, the ONA includes ten domains. Six of these domains were included in this study: education, community employment, friends, family, attitudes and behaviors, and coping skills. Many of the L&W questions were meant to relate back to ONA responses at intake.

In addition to the Likert-scale questions, questionnaires included three open-

ended questions to allow for additional comments that would be analyzed qualitatively. Preliminary analysis of responses to these questions is included in this thesis.

SPP Participant Survey

A second survey packet was designed to be given to offenders whose jobs involved a relatively high level of engagement with education/training, work with living things, community collaboration, and sustainability. The second survey packet consisted of an additional seven open-ended and nine quantitative questions assessing the participant's knowledge of SPP, work experience while incarcerated, and opinions about science education and job training.

Demographic and Offender Needs Data

DOC Headquarters provided demographic and Offender Needs Assessment (ONA) data for this study. Information was obtained on each participant's age, race, crime type, admission date to DOC custody, admission type (whether they had been incarcerated before or were new to the DOC system), estimated release date, and risk level classification. Two sets of ONA data were obtained for 289 participants; these are "need level" assessments from their intake and from their most recent ONA dates. "Need level" is determined to be low, moderate, or high for each of ten domains on the ONA. The ONA is usually readministered annually for offenders with five years or more remaining on their sentences, and more frequently for offenders with upcoming release dates. It is also readministered in the event an offender commits another crime while incarcerated (Luann Kawata, personal communication, March 31, 2013). Each ONA dataset included "need level" for each of six domains (mentioned above; education, community

employment, friends, family, attitudes and behaviors, and coping skills). This study examined changes in ONA “need levels” across job types.

DOC headquarters also provided data on infractions and grievances for the participants in this study. Infractions especially may be understood as indicators of institutional adjustment (Wolf et al. 1966, cited in Johnson et al. 1997). Infractions are issued in instances of institutional misconduct and are classified as violent or nonviolent. Grievances are official complaints filed by offenders. Rates of infractions were examined in this study as they indicate changes in behavior, including aggression. Grievance rates were included insofar as they may reflect changes in offender attitude and/or institutional climate.

Research Approval

Conducting research inside a prison is difficult. A researcher visiting a prison places extra burdens on staff, and gaining access to a population of inmates can be difficult (Glenn 2008). Ethical concerns are paramount, as prison inmates represent a disempowered population that has been exploited by researchers in the past (The Belmont Report, 1979).

I obtained approval to conduct research in prisons from Washington State University’s Institutional Review Board and the Washington Department of Corrections Research Review Committee. Both committees reviewed and approved the survey tools and study participant consent form. I then contacted administrators at nine of the twelve Washington State prisons to schedule survey administration sessions. As a general rule,

WDOC tends to place its offenders in institutions closer to their home communities to facilitate family visits, as far as it is possible given custody levels and available space (Lori Miller, personal communication, April 22, 2013). I therefore scheduled survey sessions in a variety of geographical locations in an effort to capture the demographic and cultural diversity of the state.

Sampling Methods

I worked with a liaison at each facility to create a list of 40 offenders who would be invited to participate in the survey. Each list included randomly selected offenders who worked on a variety of sustainability-related jobs as well as a randomly selected “control” group of offenders whose jobs had little to do with sustainability (such as laundry workers, custodians, and clerks). Offenders in both groups were randomly selected based on employment data from DOC Headquarters for two one-month periods (mid-October to mid-November 2012 and mid-December 2012 to mid-January 2013).

Due to DOC safety and classification regulations, not all offenders in Washington were eligible to participate in the survey project; therefore, this sample represents a subset of offenders who met certain criteria, rather than being representative of the Washington state prison population as a whole. DOC policy states that “work programs are privileges and may be restricted based on offender risk, behavior, and/or other factors” (WDOC 2011a). The primary criterion for participation in this study was eligibility to work in at least Class III jobs. Class III jobs are entry-level positions that provide training and experience to offenders who may then move to more skilled jobs

sponsored by DOC (WDOC 2011b). Many of the jobs held by offenders in this sample are classified as Class III positions. Other classes of jobs include work with Correctional Industries or state-owned businesses. Off-site work or service crews are classified as Class IV positions. Only offenders in the general population (not those in protective custody or Intensive Management Units, for example) qualify for Class III jobs. Offenders are referred for employment based on their results in the Offender Needs Assessment (ONA) (WDOC 2011a).

Study Implementation

During January and February 2013, I visited each prison for 1-2 days to survey a sample of offenders. Each survey session was scheduled to last up to two hours to give offenders ample time to complete the questionnaires. Surveys were conducted at nine of the twelve Washington State prisons (Table 1).

Washington State Prisons Involved in Study		
<u>Facility Name</u>	<u>Location</u>	<u>Custody Levels</u>
Airway Heights Corrections Center	Airway Heights (Spokane)	minimum, medium, close
Cedar Creek Corrections Center	Littlerock	minimum
Mission Creek Corrections Center for Women*	Belfair	minimum
Monroe Correctional Complex	Monroe	minimum, medium, maximum, close
Olympic Corrections Center	Forks	minimum
Stafford Creek Corrections Center	Aberdeen	minimum, medium, maximum
Washington Corrections Center	Shelton	medium, close, maximum
Washington Corrections Center for Women*	Gig Harbor	minimum, medium, close
Washington State Penitentiary	Walla Walla	minimum, close, and IMU (intensive management unit)

Table 1. Washington State Prisons Involved in this Study. Nine of the twelve prisons in Washington were included in this study. An asterisk (*) denotes a women's facility (WDOC 2013).

Data analysis methods

Each participant's identifying data (name and DOC number) were entered into a master spreadsheet (Excel, 2007), coded, and separated from his/her questionnaire responses to maintain confidentiality. Job type and "months on the job" data were confirmed to the extent possible across offender-provided responses, DOC Headquarters records, and SPP records. After scoring quantitative responses to the NEP and Life & Work questionnaires, data were analyzed using JMP (Version 10 Pro) statistical software except when otherwise noted.

Prison work programs vary widely, and this study focuses on three elements of sustainability-related work programs in Washington prisons that may be associated with lower recidivism rates and other desired effects. These elements include: incorporation of education and/or vocational training in the work assignment, work with living things, and opportunities to contribute to the community (inside or outside prison).

In order to facilitate regression analyses, I scored each of the approximately 35 different offender jobs represented in the study on a scale of 1-12. This "job index" was prepared in collaboration with a panel of corrections professionals from each of the nine prisons represented in the study and from WDOC headquarters (Table 2). The index included the following components:

- a score of 0-3 for each of the three elements
 - o education
 - o work with living things
 - o opportunity to contribute
- an extra single point if an offender's job included a stated goal of sustainability
- an extra single point if an offender was involved in multiple sustainability-related (experimental group) programs
- an extra single point if an offender had attended more than 6 Science & Sustainability Lectures in the past two years

Facility	CODED ID	JOB TYPE	Education / Training	Work with living things	Community Contribution	SUBTOTAL	Sustainability as goal?	Multiple sustainable programs?	6+ S&S lectures?	TOTAL INDEX SCORE
MCC	MCCTR15	control	0	0	0	0				0
SCCC	SCCC041	control	1	0	0	1				1
SCCC	SCCC029	SPP flag	3	3	3	9	1		1	11
WSP	WSPSP03	SPL	3	0	3	6	1			7
AHCC	AHCC003	recycle	2	0	1	3				3
SCCC	SCCC034	hort	3	2	2	7	1			8
SCCC	SCCC015	grounds	1	2	1	4			1	5
OCC	OCC0013	forestry	3	3	3	9		1		10
SCCC	SCCC033	bikes	2	0	3	5				5

Table 2. Examples of Job Index Scores. Each job type at each facility was given an “index score” based on its degree of incorporating education/training (0-3), work with living things (0-3), and opportunities for community contribution (0-3). An additional single point was given for a job with a stated goal of sustainability. Individual offender participants who were involved with multiple sustainable programs (such as those working in the garden and also as dog trainers) were given another point, as were participants who had attended more than six lectures in SPP’s “Science & Sustainability” lecture series.

For other analyses (including Analysis of Variance (ANOVA) and ordination), I organized the ~35 jobs into ten “job type” categories, including a control group of non-sustainability jobs. Sustainability-related job types included recycling, forestry, horticulture, community service crew, groundskeeping, dog training, kitchen, “other” sustainability-related (including composting and bicycle/wheelchair refurbishment), and “SPP Flagship” (including endangered species rearing, conservation, and other jobs with a stated goal of sustainability).

Linear regressions were performed comparing job index score to scores on the NEP and Life & Work questionnaires. Analysis of Variance (ANOVA) tests were run comparing job type to scores on the NEP and Life & Work questionnaires.

To more closely examine concepts within the 32-item Life & Work questionnaire, a pairwise factor analysis using VARIMAX rotation was conducted using SPSS. VARIMAX rotation distinguishes separations between factors, providing a more definite outcome for distinct subsets of related items (variables). Variables loading at a minimum of 0.4 were combined into factor indices. This dataset produced seven factors of 2-7 items each, and nine items were not included in any factor index due to no load or a double load. Indices included: mental/physical health, work satisfaction, community relationships, skill development, future outlook, interpersonal relationships, and interest in further education. Multi-Response Permutation Procedures (PCORD, version 6) were used to compare these seven factors and the variables of prison facility, type of work, grievances, infractions, release date, admission date, race, age, and NEP score.

As mentioned above, sections of the L&W questionnaire were written with the intention of relating to Offender Needs Assessment (ONA) domains. To determine how well this was accomplished, simple linear regressions were performed on L&W questionnaire response data and ONA “need level” changes from intake to most current ONA administration. The regressions aimed to determine whether participant responses in certain sections of the L&W questionnaire were correlated with changes in their Offender Needs Assessment scores from intake and their most recent ONA for the hypothesized corresponding factors. ONA data were also examined for changes over time, by job type, and by prison facility.

Results

This survey included 293 participants, although not all participants completed both the NEP and the Life & Work questionnaire in full. Some data from DOC were missing for some participants, explaining the variance in sample size among the analyses below (the maximum sample size available was used for each analysis). The overall sample included 80 control group members with job titles such as porter, custodian, gas shack attendant, recreation assistant, laundry, Correctional Industries, and skilled positions such as electrician and welder. “Experimental” group members numbered 213, and their jobs fell into nine categories relating to sustainability: community service crew (23), dog training (24), forestry (23), groundskeeping (37), horticulture (27), kitchen (17), “other” (16, including bicycle refurbishing, composting/vermiculture, etc.), recycling (25), and SPP Flagship (21, including endangered species rearing, conservation and restoration programs, and other sustainability-focused community projects).

Risk level for offenders in the WDOC system is based on likelihood to reoffend (high, moderate, or low) and crime type (violent or nonviolent). This sample included 106 offenders classified as high-violent, 74 high-non-violent, 55 moderate, 57 low, and one unclassified. The offenders in this sample were incarcerated for a variety of crime types, including murder (43), manslaughter (4), sex offenses (62), robbery (32), assault (48), property crimes (62), drug crimes (17), and other (4). More than half (157) were serving their first sentence, whereas 127 had been incarcerated before and had recidivated (eight offenders fell into the “other” category, including out-of-state transfers, revocations, and violators). The participant with the earliest admission date into the WDOC system entered custody in 1981, and the newest entered custody in 2012. Several

participants have already been released since completion of the surveys; others are incarcerated with life sentences.

The racial makeup of the sample included 10 Asian/Pacific Islander, 30 African American, 22 Hispanic, 14 North American Indian, 215 white, one “other” and one “unknown.” Ages ranged from 18-71, with a median age of 35 and average age of 37.5. For more information about how this study’s sample compares to Washington prisons overall, see Appendix A.

Offender Needs Assessment (ONA) results indicate an offender’s “need level” in each of ten domains, six of which were used in this study. Need level is classified as high, moderate, or low, and indicates a need for programming (such as therapy, training, or education). Of the 288 participants for whom we had complete ONA data, 83 offenders were assessed to have “high” need in one or more of the six ONA domains of interest at their intake ONA administration date. On their respective most recent ONA administration dates, 87 members of this sample were assessed to have “high” need in at least one of the six domains. More detail on changes in ONA results over time is included later in this section.

Overall Questionnaire Scores by Facility

The lowest possible score on the NEP is a 15, which would indicate a very anti-environmental worldview; the highest is a 75, indicating a very pro-environmental attitude. Scores on the NEP for this study ranged from a low of 34 to a high of 73, with an average score of 54.9 for the 268-person sample completing both the NEP and the Life & Work questionnaire (Table 3). L&W scores varied from a low of 78 to a high of 165,

and the sample-wide average was 122.4. There was no statistically significant variation in NEP or L&W score among prisons ($p>0.05$). However, there was a trend toward a difference in mean NEP score when comparing a men's prison with a similar women's facility (see Appendix B). Experimental groups tended to score higher on the NEP than control groups, and the difference was particularly pronounced at some facilities (for an example, see Table 4). There was no such trend for L&W scores based on control/experimental group membership.

Facility name	NEP average	L&W average	Sample size
AHCC	55.52	123.26	31
CCCC	53.59	122.10	29
MCC	54.98	125.7	40
MCCCW	55.62	127.52	27
OCC	51.48	126.44	41
SCCC	55.97	115.81	31
WCC	55.5	120.03	32
WCCW	57.75	118.75	4
WSP	53.42	122.36	33
Statewide	54.87	122.44	268

Table 3. Mean NEP and L&W scores by facility.

Samples were not evenly distributed among job types at each facility. This table includes only those participants who completed **both** the NEP and LW sections of the questionnaire in full.

Facility and Group	NEP average	L&W average	Sample size
WSP – CONTROL	49.81	124.69	16
WSP - EXPERIMENTAL (sustainability jobs)	56.82	120.18	17
WSP – all	53.42	122.36	33

Table 4. Mean NEP and L&W scores for Washington State Penitentiary. The WSP experimental group scored notably higher on the NEP Scale than the control group. L&W scores were not significantly different for the two groups. Samples were not evenly distributed among job types at WSP.

New Ecological Paradigm (NEP)

Examination of NEP data revealed several interesting outcomes. A positive linear relationship between job index score and NEP score exists ($F_{(1, 284)} = 6.0291$, $p=0.0147$, $R^2 = 0.02$); however, only 2% of the variation in NEP score is explained by index score (see Figure 1).

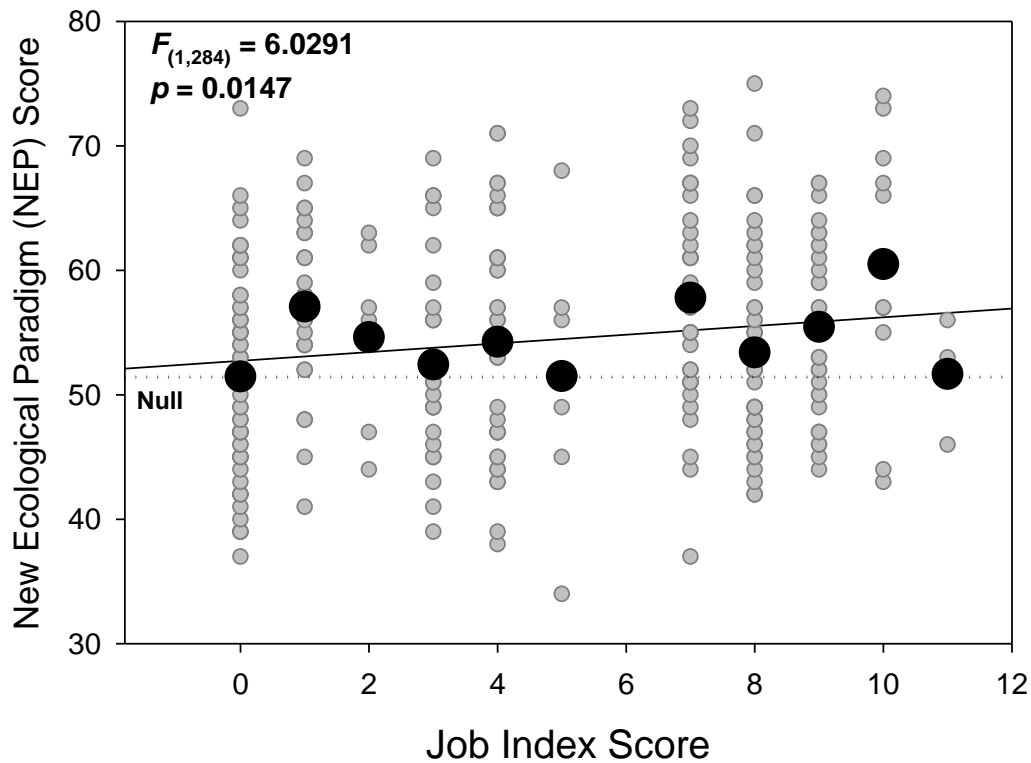


Figure 1. NEP score by job index score. Offenders whose job index scores reflected more incorporation of education, work with living things, and opportunities to contribute to the community tended to score higher on the NEP than offenders whose jobs included little or none of each of these elements ($R^2=0.020788$, $f_{(1,284)}=6.0291$, $p=0.0147$). Community contribution and education were more strongly related to higher NEP scores than was work with living things. Community Contribution $f_{(1, 281)} = 6.6673$, $p=0.0103$, $R^2 = 0.023$; Education $f_{(1, 281)} = 4.843$, $p=0.0286$, $R^2 = 0.017$.

An analysis of variance (ANOVA) indicated that participants who worked on SPP Flagship jobs scored significantly higher on the NEP than participants in the control group, although the effect size was small ($R^2=0.065$, $F_{(9,273)}=2.1224$, $p=0.0279$; Figure 2).

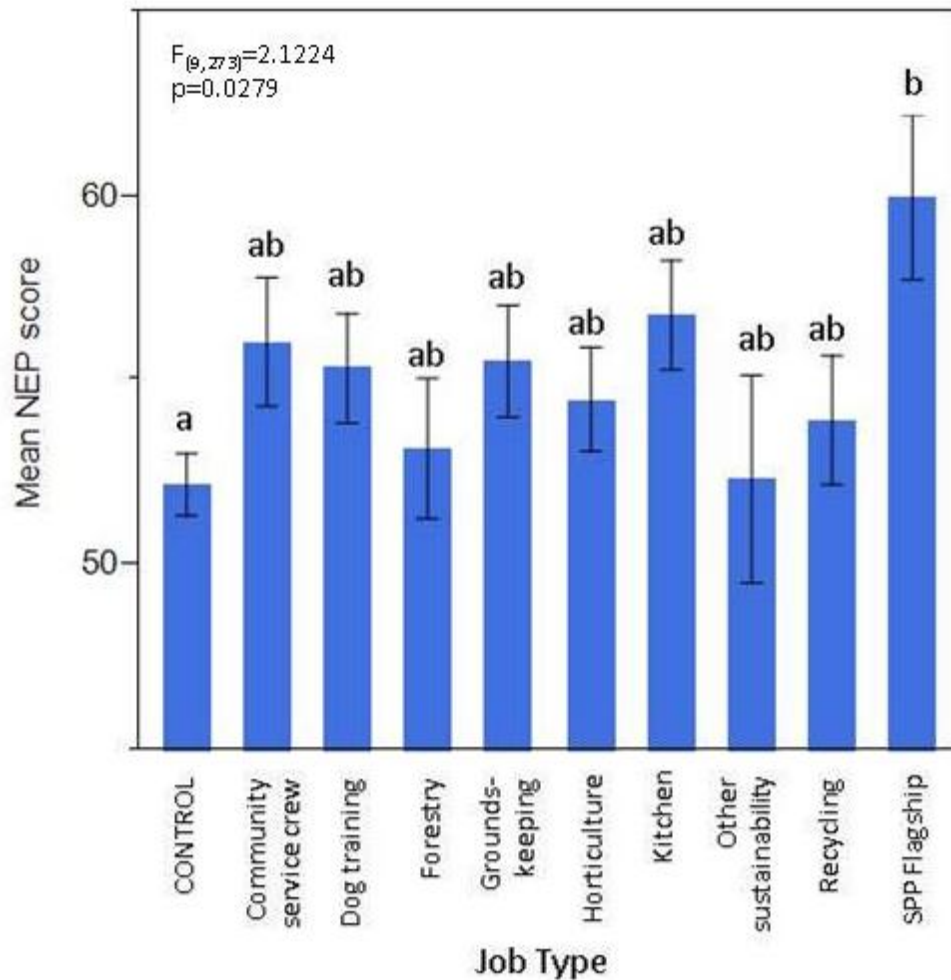


Figure 2. Mean NEP score by job type. Offenders who work on “Flagship” sustainability jobs, including endangered species rearing, conservation projects, and WSP’s sustainable practices lab, scored higher than any other group on the New Ecological Paradigm. The mean NEP score for SPP Flagship workers was significantly different from the mean NEP score for the control group ($R^2=0.065393$, $f_{(9,273)}=2.1224$, $p=0.0279$). Each error bar is constructed using 1 standard error from the mean.

Other regression analyses involving the NEP ($n=286$) revealed statistically significant relationships. Both Community Contribution and Education job index scores (0-3) were positively, although weakly, related to NEP scores (Community Contribution $F_{(1, 281)} = 6.6673$, $p=0.0103$, $R^2 = 0.023$; Education $F_{(1, 281)} = 4.843$, $p=0.0286$, $R^2 = 0.017$; see Appendix C). The job index score for “work with living things” was not found to relate

significantly to NEP score ($p>0.05$).

A regression analysis was also performed to examine possible relationships between grievance rates and NEP scores, but it revealed no significant relationship ($p>0.05$). Infraction rates were also not significantly related to NEP scores ($p>0.05$). NEP score was not related to race ($p>0.05$), but it did appear to be affected by age. A linear regression showed that older participants tended to score higher on the NEP than younger participants ($R^2=0.024217$, $F_{(1,281)}=6.9738$, $p=0.0087$; see Appendix D).

No statistically significant relationships were found between NEP and estimated release date, admission date, crime type, risk level classification, or admission type ($p>0.05$). A trend was found when investigating possible relationships between NEP score and time spent at different job types: people who had worked on SPP Flagship jobs (conservation nursery, sustainable practices lab, endangered species rearing) longer tended to score higher on the NEP than those who had been engaged in that type of work for less time ($R^2=0.0289$, $p<0.001$, slope= 3.28 ± 1.92). Conversely, participants who had been working in control-group jobs longer tended to score lower on the NEP than those who had held control-group jobs for less time ($R^2=0.0044$, $p<0.0001$, slope= -2.54 ± 1.39). The 90% confidence intervals for these regression lines did not overlap (Figure 3). Information about NEP scores for other job types over time is included in Appendix E.

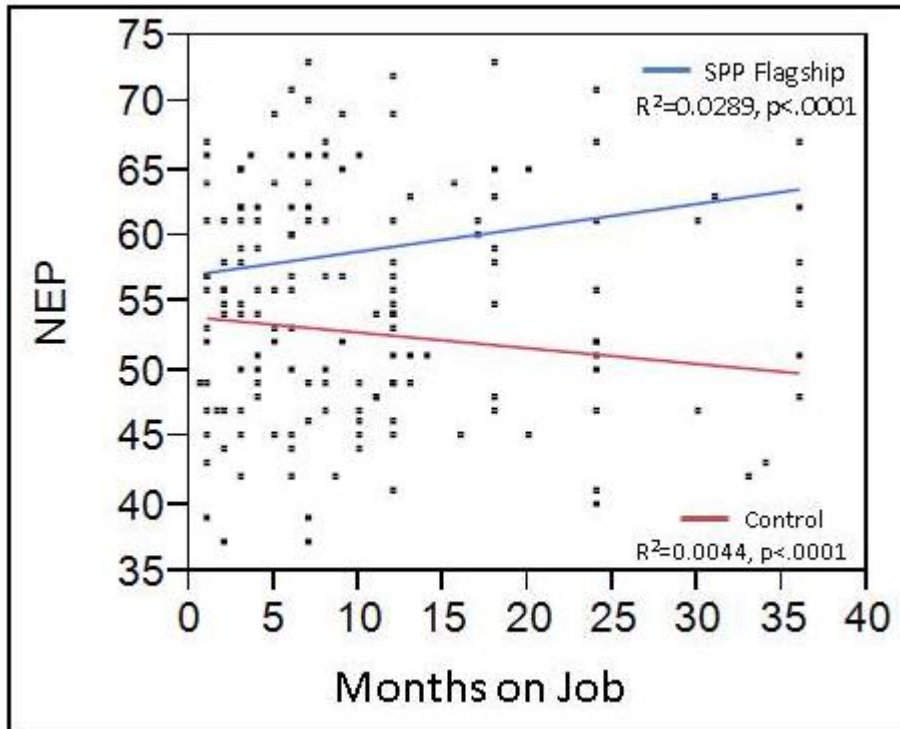


Figure 3. NEP Score by Time on the Job for Two Job Types. The longer people work on SPP Flagship jobs, the more pro-environmental their attitudes tend to be. The longer they work on control jobs, the more anti-environmental their attitudes tend to be. 90% confidence intervals do not overlap.

Life & Work Questionnaire (L&W)

Life & Work questionnaire scores were examined using a variety of statistical tests. No statistically significant relationship was found between job index score and L&W total score, but the variables trended toward a positive relationship ($F_{(1, 288)}=3.5684, p= 0.0599, R^2 = 0.012$). None of the three job index elements (education, work with living things, and community contribution) was found to be significantly related to overall L&W score ($p>0.05$). When ANOVA was used to test for a relationship between L&W total score and job type, no significant relationships were found ($p>0.05$). However, results suggest that offenders who work in dog-training programs tend to score higher than any other group on the Life & Work questionnaire overall, followed by those working on

community service crews (see Appendix F).

A linear regression found no statistically significant relationship between score on the L&W questionnaire and score on the NEP ($n=264$, $p>0.05$). As with NEP scores, neither grievances nor infractions was significantly related to L&W total scores ($p>0.05$). Multi-Response Permutation Procedures (PCORD, version 6) were used to test for relationships between each of the seven Life & Work questionnaire factors and the variables of prison facility, job type, grievances, infractions, release date, admission date, race, age, and NEP score, and to test for indicators among the latter variables on the former. No statistically significant relationships were found between any of these variables and overall responses in the L&W questionnaire.

Life & Work scores compared to ONA scores

Two factors of the L&W questionnaire, education and skill development, were found to relate to corresponding Offender Needs Assessment (ONA) domains based on factor analysis (IBM SPSS Statistics 21.0, 2012). Linear regressions were performed to determine whether participant responses on the L&W questionnaire were correlated with the changes in their ONA scores for these factors. Although the ONA's "education" domain trended toward a positive correlation with the L&W "education" factor; and the ONA's "community employment" domain trended toward a positive correlation with the L&W "skill development" factor, neither relationship was statistically significant based on participant responses (see Appendix G).

ONA Change Results

As discussed above, the number of offenders who were assessed to have “high” need in at least one of the six ONA domains over the course of their time spent incarcerated increased. However, ONA results for the six domains of interest in this study improved over time for the overall 288-person sample. The sample as a whole showed 8.3% less need across the six domains at participants’ most recent ONA administration than it had at the same individuals’ respective intake ONA sessions. The greatest improvement in overall ONA results – that is, the greatest decrease in “need” – was seen for the horticulture and dog-training groups. Other groups showing a decrease in need were the SPP Flagship jobs, “other” sustainability jobs, the control group, and groundskeeping (though the decrease in need for groundskeepers was slight, at 2.8%). The kitchen-worker group showed no change. Groups showing an increase in need were community service crew, forestry/DNR crew, and recycling workers (Table 5, Appendix H). There was much variation in ONA “change in need” results for every ONA domain.

Change in Overall ONA Results by Job Type		
Job Type	Sample size	% change
Control	78	+26.9
Community Service Crew	23	-39.1
Dog Training	24	+29.1
Forestry/DNR	23	-4.3
Groundskeeping	36	+2.8
Horticulture	27	+29.6
Kitchen	17	No change
Other sustainability	16	+12.5
Recycle	24	-29.2
SPP Flagship	20	+10.0
Overall Sample	288	+8.3

Table 5. Change in ONA results by job type. Percent change in ONA “need level” from intake to most recent ONA administration are organized by job type. Positive (+) changes indicate an improvement in offenders’ abilities in six domains (coping skills, education, family, friends, employment, and attitude/behavior); negative (-) percentages indicate an increase in offenders’ need for programming in these areas overall.

Qualitative Results

Qualitative data from this study remain to be analyzed and will likely be the subject of a future paper or papers. Three open-ended questions were included in the main survey tool. Of the 293-person sample, 182 participants answered one or more qualitative questions. A positive linear relationship was found between NEP score and the number of qualitative questions a participant answered ($R^2=0.045$, $F_{(1,284)}=13.4826$, $p=0.0003$) among the 286 participants who completed the NEP. Job index score was not significantly related to the number of qualitative questions answered ($p>0.05$). Life & Work questionnaire score was also unrelated to number of qualitative questions answered ($p>0.05$).

Discussion

Significant relationships were found between NEP score and job index score and job type, as well as for NEP score and the comparison between SPP jobs and controls. The experimental group (offenders with sustainability-related jobs) tended to score higher than the control group on the NEP, although datasets were highly variable. NEP score was not found to be significantly related to demographic or crime variables. The Life & Work (L&W) questionnaire was not found to be significantly related to any other variables, although some trends emerged. Offender Needs Assessment (ONA) “need level” changes over time also showed interesting results when compared with job types.

This section considers the reasons behind statistically significant results involving the NEP as well as the lack of significant results related to the Life & Work questionnaire. A brief discussion of the changes seen in Offender Needs Assessment data follows. Various limitations readers should bear in mind are included, as are suggestions for future research (for more detail on limitations and future research, see Chapter 3).

Results of this study indicate that offenders who participate in “SPP Flagship” job activities score higher than any other group on the New Ecological Paradigm (NEP), with the largest difference between Flagship workers and control group members. While datasets were highly variable, these results provide an argument for the incorporation of more of the elements of “Flagship” jobs into other work assignments. The elements of education/training, work with living things, and the opportunity to contribute to the outside community are only some of the common components of SPP Flagship jobs. Further research is needed to determine which other factors may influence NEP scores.

NEP

The linear relationship between job index score and NEP score was statistically significant; however, the dataset was highly variable, with only 2% of the variation in NEP score explained by job index score. These results indicate that inmates whose work embodies elements of SPP programming tend to exhibit more pro-environmental attitudes than those whose work does not.

SPP Flagship programs intentionally incorporate at least two of the three job-index elements (education, work with living things, and community contribution opportunities), whereas other jobs, regardless of their relevance to the environment or sustainability, may or may not make a point of including these elements. The greatest difference in NEP scores was seen between SPP Flagship workers and control-group members, supporting both the job indexing method and the idea that the more “SPP” a program is, the more pro-environmental its workers’ attitudes tend to be.

Further, the trend toward a positive relationship between NEP score and time spent in an SPP Flagship job suggests that pro-environmental attitudes may become even stronger with time spent in a position that focuses specifically on sustainability, environmental science, and/or restoration. This is especially interesting when contrasted with the downward trend in NEP scores among control-group members the longer they stayed in non-environmental jobs.

These associations do not imply that jobs with SPP changed offender attitudes; it is possible, even likely, that the offenders who chose to work in a greenhouse or in a composting program would express more interest in environmental issues and more pro-

environmental beliefs than offenders who chose other jobs. The amount of choice an offender has in his or her work assignment can vary by facility, security level, and nature and level of staff involvement. For example, WDOC policy states that priority in hiring for Class III offender jobs is given to filling positions “vital to facility operations” over other positions (WDOC 2011b). Offenders wishing to work in SPP’s conservation and restoration projects must apply, submit a resume, and go through an interview process; other positions are filled simply based on space available. To the extent offenders are able to self-select into environmental jobs, then, selection bias may be an issue. This extent is unclear and is likely highly variable among and even within prisons.

Given the correlation between pro-environmental and pro-social attitudes and behaviors noted by previous researchers (Milfont & Gouveia 2006), the positive relationships found in this study between job index scores and NEP scores suggests that providing more offenders with the opportunity to engage in jobs with higher levels of education/training, work with living things, and community contribution opportunities may translate into more pro-environmental and pro-social behaviors. As many people in prison are there precisely for demonstrating anti-social behavior, the potential for encouraging the development of pro-social attitudes through environmental and social-sustainability-related programming shows great promise. The significant difference in NEP scores between SPP Flagship workers and control-group members suggests that expanding SPP program offerings in prisons may give more offenders the opportunity to develop pro-environmental (and pro-social) attitudes through meaningful work experiences.

As with the linear relationship between job index score and NEP score, the

positive trends seen between Community Contribution index score and NEP score, and between Education index score and NEP score, also emerged from highly variable datasets, with very little of the variation in NEP score accounted for by changes in respective index elements. However weak, the existence of a significant relationship between Community Contribution and NEP scores suggests that providing offenders with opportunities to contribute to the outside-prison community is a good idea. This lends support to Bayliss's (2003) recommendation that prison education include more community interaction. Although no relationship was found between the Work with Living Things index score and NEP score, there is a great need for studies that specifically examine the possible therapeutic effects of working with living things in a prison setting.

The positive linear relationship between NEP score and age is notable although it was weak, with only 2.4% of the variation in NEP score explained by age ($R^2=0.024$). Some studies conducted outside prison environments have shown that older people tend to score higher on the NEP (Arcury et al. 1986, Casey & Scott 2006), although other studies have indicated the opposite is true (Arcury & Christianson 1990, Dunlap et al. 2000, Van Liere & Dunlap 1980), and a 2008 meta-analysis of studies using the NEP did not find any significant correlations between NEP score and age (Hawcroft & Milfont 2010). Further research using the NEP might include prison populations in investigations of demographic effects such as age on NEP scores.

The lack of relationships between NEP score and crime-and-punishment data (crime type, admission date, admission type, risk level classification, or estimated release date) is remarkable in its statistical insignificance across the board. This study does not

find crime-related factors to influence (or be influenced by) environmental attitudes. This may be due to the limited sample size; although offenders who have committed a variety of crimes and with varying levels of risk classification were included, it was impossible to include offenders ineligible for at least Class III jobs, which carry minimum criteria for behavior and may include restrictions based on risk level as well (WDOC 2011a, 2011b). Of course, it may simply indicate a lack of variation in environmental attitudes among offenders who have committed different types of crimes.

L&W

Overall, the Life & Work questionnaire responses were not found to relate significantly to any other factor or dimension in this dataset, suggesting that this tool may need revision, and/or simply that the participants in the overall sample did not significantly differ in their attitudes about their own skill development, interest in furthering their education, interpersonal relationships (both inside and outside prison), mental and physical health, work satisfaction, and outlook for the future. This lack of significant results was surprising because environmental attitudes are often correlated with “attitude” in general (Bamberg & Möser 2007), and several of the L&W factors, especially “outlook for the future” could be seen as a measure of optimism.

ONA Change Data

The overall decrease in “need” across the six ONA domains during study participants’ time in prison indicates that the 288-person group as a whole has improved in the areas of interpersonal relationships (friends and family), employment, coping skills, attitudes and

behaviors, and education. However, the 8.3% overall improvement is quite modest. Improvement was seen for six of the ten job types, including the control group, but three groups showed increased need for programming or support. Two of these groups' need levels increased substantially: Community Service Crew members' need levels increased by 39.1%, and Recycling workers' need increased by 29.2%. More research would be needed to more precisely determine the effects job placement may have on skills and attitudes related to ONA domains, as an offender's job assignment is usually only one of several parts of his or her "program," (other program components may include cognitive-behavioral therapy, religious programs, or participation in other voluntary classes or groups).

Caution should be taken when interpreting the relationship between the ONA change data and job type especially, as some offenders' most recent ONA was administered prior to beginning their current jobs. ONAs are administered by WDOC staff and may be quite subjective, leading to possible inconsistencies in assessment of need level across caseloads and institutions (Luann Kawata, personal communication, June 3, 2013). Two additional limitations concerning the ONA result from its relative newness. The ONA has only been used by WDOC since 2006; prior to that another quantitative survey of offender needs and characteristics was used (the Level of Service Inventory-Revised, or LSI-R). LSI-R results from years prior to 2006 had to be manually converted to fit with the ONA, as many items on the two assessments were the same or similar, but different algorithms were used to analyze them. Finally, there is a need for further ONA-specific training for WDOC staff, as trainings on the new tool have been minimal due to time and resource constraints (Luann Kawata, personal communication,

June 3, 2013).

Limitations

When interpreting NEP, L&W, and ONA results involving “months on the job” information, readers should bear in mind that inmate participants often reported different jobs and different months on the job than did DOC headquarters. Offenders change jobs frequently and some jobs titles varied among institutions and even among offenders (for example, DOC does not include a job title for “greenhouse,” but some offenders identified this as their primary occupation). Every effort was made to determine an offender’s actual job at the time of survey administration, using data from DOC and SPP records as needed.

Offenders sometimes may understand seasonal work differently than DOC records it. For example, an offender who has been working as a groundskeeper every summer but a porter every winter may have been included in the “control” group in January 2013, when surveys were administered, but self-reported as a groundskeeper. Those who fell into this and similar categories were asked to note this on their surveys, and employment records from SPP were used to identify and confirm participants in the “Flagship” positions involving restoration and conservation. As mentioned in the methods section, offenders engaged in multiple sustainability-related programs at the same time (for example, dog training and recycling) were given an additional point in their job index scores to control for possible additive effects in analysis.

Staff liaisons at each facility provided excellent assistance before, during, and

after survey administration sessions, but individual subjectivity may mean that job index data is imprecise, as cooperating liaisons provided input on index scores. This issue is limited to regression analyses; categorizing jobs for ANOVA and t-tests was more straightforward once actual jobs had been confirmed.

Every effort was made toward a uniformity of survey-session experience for participating offenders among prisons (see Appendix I); however, due to different physical settings, institutional security levels, and institutional cultures, the character of survey administration sessions varied among facilities. Future researchers should prioritize clear and consistent communication with collaborating prison staff, including instructions for how the project should and should not be presented to offenders beforehand. I worked hard to make sure participating in this survey was voluntary.

Suggestions for further research

Further examination of the effects of science and sustainability programming in prisons on inmates is needed. Studies could include dedicated pre- and post-participation surveys of offenders, eliminating the need for a control group and allowing individuals to be compared with themselves over time. This would provide researchers with an understanding of how people may grow and their attitudes may change as a result of engaging in science- or sustainability-related work programming. This approach would eliminate the need for a control group, which may be a challenge when conducting research in prisons.

Currently, Washington DOC's Offender Needs Assessment is readministered annually for offenders with five or more years remaining on their sentences and once every six months for those with less time remaining; it is also readministered when an offender commits a new crime while incarcerated (Luann Kawata, personal communication, March 18, 2013). The ONA does not currently include any measure of environmental attitudes; perhaps the NEP or a similar scale could be administered at intake along with the existing battery of evaluations. This would make it much easier for participants in sustainability-related programming to be evaluated for attitude changes over time.

This study supports the idea that environmental education, vocational training, and related opportunities to contribute to the outside community can be significant contributors to more pro-environmental attitudes among prison inmates. As pro-environmental and pro-social attitudes are closely related, incorporating environmental education, "green-collar" job training, and opportunities to contribute positively to society may lead to safer communities both inside and outside prisons, reducing the environmental, economic, and social costs of incarceration.

Chapter 3

Future of Science and Sustainability in Prisons

This chapter provides recommendations to the Sustainability in Prisons Project given the findings of this study, expands on the limitations mentioned in the previous chapter, and describes a host of future research opportunities for investigators interested in SPP, human-environment interactions, and environmental programming in prisons. A discussion of the interdisciplinary nature of this study and of SPP's work follows. The chapter, and the study as a whole, concludes by placing this research in the wider context of evaluation efforts around prison-based science and sustainability programming, especially pertaining to SPP's national expansion efforts.

Recommendations to the Sustainability in Prisons Project

Further research on SPP programs in Washington and across the US will only add to the organization's capacity to provide meaningful programming and understand the "in-prison" and "in-person" effects of working on sustainability-focused work assignments for incarcerated people. As the SPP is largely funded by grants, the organization's capacity to incorporate these recommendations will be largely dependent on funding, but enhancing its evaluations program may lead to further funding opportunities in the future, especially if studies continue to show encouraging results. Prioritizing and formalizing evaluations processes and practices across Washington State and the nascent nationwide SPP Network will lead to much larger sample sizes, lending increased statistical power to any coordinated evaluation effort. Involving more SPP prisons and partners in evaluations activities will allow for more high-quality concentrated studies as well as

wider-ranging research projects. Maintaining current scientific evidence that details the effects of SPP programs will strengthen the organization's grant proposals and other appeals for funding support. It will also begin to satisfy the many questions SPP receives from the media and the public about the effects of its programs, and will illuminate areas for program improvement and opportunities for further investigation.

In order to facilitate further research projects on SPP (some potential examples of which are detailed below), I encourage SPP to continue to keep track of inmate participation in SPP programs in a centralized location, including start dates, indicators of institutional adjustment (infraction and grievance history), and employment end dates and reasons. The nature of SPP's student-powered conservation programs means that most programs experience high turnover, with graduate research assistants usually only able to stay with the Project for one or two years. Data tracking, therefore, is essential for maintaining institutional knowledge.

Inmate technicians on conservation and restoration programs are usually evaluated upon hire for environmental knowledge and attitudes; I encourage formalizing and expanding this practice to other sustainability-related jobs across WDOC and the nationwide SPP Network. Time-of-hire surveys should be followed up with periodical questionnaires to evaluate changes in attitudes, beliefs, and behaviors over time, including an evaluation at the time an inmate leaves an SPP work program. This may be another opportunity to administer the NEP Scale. These surveys may also be incorporated into regular "Offender Performance Evaluations" that are completed annually by Class III job supervisors (WDOC 2011b).

As far as it is possible, SPP inmate “alumni” should be invited to continue engagement with the Project post-release, including being invited to participate in post-release survey projects. The definition of this group should be formalized and used for studies across the state and the SPP Network: do offenders who were employed in a conservation project for only a month or two count as “alumni”? How much education, work with living things, and/or opportunity for community contribution is necessary in order for a program to become an “SPP Flagship” job? Although this question was fairly easy to answer for this study, as SPP expands to include more prisons in more states, it may become less easy to monitor and control.

Recidivism data is available for inmates who reoffend and are re-incarcerated in Washington State. However, the sample size for SPP “alumni” is too small to have much statistical power in recidivism statistics, as the definition of an SPP program has only expanded to include jobs such as recycling, dog training, and DNR crews within the past year. The national standard for recidivism statistics includes reconviction up to three years after release, further increasing the time needed for an adequate sample size of SPP “alumni.” Employment data for released offenders is somewhat more difficult to obtain than recidivism rates, but as the SPP continues to expand its presence in WDOC facilities and more offenders who have been engaged are released, recidivism and employment statistics will have more meaning.

At present, only one-half of one part-time graduate research assistant’s job duties are focused on evaluating SPP’s programs and their effects on various stakeholders. In order for more consistent evaluation to be done, I encourage dedicating at least a student-staff position to evaluations activities. A top priority of these activities should be the

establishment of a uniform, reliable pre-/post-participation survey tool to be administered to all WDOC inmates at intake and again during SPP evaluations studies. This survey tool may incorporate the NEP or another test of environmental attitudes as well as other measures not addressed by the ONA (including the NEP would provide an opportunity to contribute to the body of longitudinal research using the revised NEP, a need expressed by Dunlap et al. (2000).). Inmates who work in sustainability-related jobs may then be given the opportunity to complete the NEP scale upon hire, after having been in a work position for a few months, and again when they leave the position. Additional evaluation tools appropriate to each work assignment may be administered at these times as well. Such tools might include questions addressing inmates' environmental behaviors as well as environmental attitudes.

A student-staff researcher specializing in evaluations could conduct any number of studies on SPP work programs. One example is a more concentrated examination of the possible therapeutic effects associated with working with living things in different types of SPP work settings. The study might compare the experiences of inmates who work as dog trainers, endangered species rearing technicians, horticulturists, and prairie-plant conservation crew members, and could involve collaboration with a psychologist specializing in animal, horticulture, or nature therapy.

Deeper examination of the other two key elements of SPP Flagship jobs, education/training and opportunities for community contribution, is another opportunity. While plenty of literature linking gains in education to reductions in recidivism exists, there is less available on science and conservation education in prisons in particular. A study investigating this might concentrate on these types of education, both for inmates

who engage in it as part of their jobs and for inmates who participate in SPP's dedicated educational programs. At least five Washington prisons host SPP educational programs, including monthly science and sustainability lectures and the Roots of Success® environmental literacy curriculum.

Similarly, research has been conducted on community service programs involving offenders and parolees, but few studies have focused on inmate contributions to ecological restoration and other sustainability-related service opportunities. Another opportunity for graduate student research, then, would examine this element more closely, perhaps to begin to understand how prison inmates may be capable of helping to address some of society's most pressing environmental challenges. Other projects could examine a variety of hypothesized effects and outcomes of participation in SPP work and educational programming. Additional suggestions for future research are included below.

Regardless of its focus, further research conducted by or about SPP may benefit from considering how to control for participants' engagement in other types of DOC programming. This study only examined the possible effects of job type on environmental attitudes and a number of other factors, but preliminary quantitative analysis suggests that some inmates may not differentiate between their work assignments and the other parts of their "program," which may include religious activities, cognitive-behavioral therapy, or anger management classes. Participation in religious programming stands out as an example that has been associated with lower recidivism rates, although religious programming is not necessarily associated with lower infraction rates among participants who are still incarcerated (Johnson et al. 1997).

Regardless of where lines are drawn, other elements of offender programming may produce significant effects in the areas this study aimed to assess, and should be considered. As Antonowicz and Ross (1994) outline, several essential components of programs aimed at the ultimate goal of reducing recidivism include elements that cut across the boundaries of vocational training, work activities, and cognitive-behavioral therapy. Therefore, cooperation and coordination among departments, agencies, and outside organizations offering programming in WDOC prisons, while challenging, is quite important to support positive offender change in all potential “need” areas (education, employment, friends, family, coping skills, health, etc.).

Preliminary qualitative analysis of offender comments also suggested participants’ strong desire for more formal certificate-granting programs that could ease the transition to life outside prison. Certifications and accreditations that would be acknowledged by outside-prison employers appeared to be in high demand, as did more support and training for offenders’ transition to the outside community. Although SPP does not concentrate on reentry programming, there nevertheless appears to be a need for SPP to offer more resources to its released “alumni” or to expand partnerships and collaborations with groups that focus on reentry.

Limitations

This study was subject to substantial limitations, some of which were mentioned above. This section notes limitations imposed by sample size, the selected and created survey tools, and the gap between attitudes and behaviors.

I invited approximately 360 offenders to participate in this survey project, with the understanding that some would decline. Ideally, the number of invitees would have been even higher and would have involved offenders at all twelve of the WDOC's prison facilities. The nine prisons involved in the study were chosen based on 1) existence of SPP- and SPP-related programs at each facility and 2) geographical distribution. For future research in Washington, Larch Corrections Center (minimum security), Clallam Bay Corrections Center (medium, close, and maximum security), and Coyote Ridge Corrections Center (minimum and medium security) will ideally be included in addition to the nine prisons studied for this project.

Due to a change in the call-out procedure at some facilities, there was sometimes confusion about whether participation in the project was mandatory. I made it very clear to offenders who did report to the survey administration room that participation was completely voluntary, but some who thought it may interfere with their work obligations did not even report. Offenders were compensated at their normal hourly wage for participating in the survey project, so as to not provide a disincentive for participation, but this was not explained to them until they reported for the survey activity. Rates of participation varied widely among facilities.

My final 293-participant sample was further pared down based on completeness of participant responses. I made it clear when introducing the survey project to each room of participants that they were free to skip questions that made them uncomfortable. Any participant who did not answer every question on the NEP or the L&W questionnaire, however, was excluded from statistical analysis for that respective tool. In cross-tool tests, sample size was therefore even smaller and more variable.

Survey Tools

The main survey tool provided for participants to fill out included the Likert scale across the top of each page to minimize the potential for confusing one extreme for another (i.e., mistakenly indicating “strongly agree” when “strongly disagree” was meant, or vice versa). However, the scale only included descriptions for the numbers 1, 3, and 5 (that is “strongly disagree,” “neither agree nor disagree,” and “strongly agree,” see Appendix J). It is possible that some respondents were confused by the lack of information provided for numbers 2 and 4 (which indicate “disagree” and “agree” respectively). No qualitative comments indicated this confusion; however, some surveys included only responses in odd numbers; whether this was reflective of actual opinions or confusion about the scale cannot be known.

A couple of small changes were made to the New Environmental Paradigm Scale for its inclusion in this study. First, the word “earth” was substituted for “environment” in the fifth item of the scale, which originally read “humans are severely abusing the environment.” Second and more importantly, the Likert scale number 3 on my survey tool was labeled as “neither agree nor disagree,” whereas in Dunlap et al.’s (2000) New Ecological Paradigm this intermediate number is labeled as indicating “unsure.” Dunlap and his colleagues indicated that this change was made to cut down on nonresponses (relative to those experienced with the original New *Environmental* Paradigm (Dunlap & Van Liere 1978)). I maintained 3 as “neither agree nor disagree” to keep the Likert scale consistent throughout the entire written survey for this study, of which the NEP scale was only one part. Other researchers have noted negative participant feedback regarding the use of “unsure” as the midpoint of the Likert scale (see Martin 2013).

For its worldwide use, the NEP has not escaped criticism. Some researchers suggest substantial revisions or argue against its utility altogether (Lalonde & Jackson 2002; Scott & Willits 1994). Disapproval of the NEP is particularly prevalent among highly educated survey participants (Lalonde & Jackson 2002, Martin 2013). Indeed, this researcher took issue with the implication of a dichotomy between humans and nature and of the notion of “balance” in nature discussed in Dunlap’s (2008) reflection of his work, where he defends the usefulness of the NEP for most general populations.

Recent studies have reported participants’ dislike for individual questions in the NEP (see Martin 2013), and preliminary qualitative analysis for this study indicates the same is true for this sample. As in Martin’s (2013) study, some participants used the space provided for responses to open-ended questions to explain or justify their responses to some NEP questions or to express their dislike for “weird questions.”

For this study, the 15 NEP questions were presented last in a longer written questionnaire, and a few participants did not complete this portion of the survey. It is unclear whether this was due to survey fatigue or a dislike for the questions. An additional issue for this paper-based questionnaire could be that the NEP scale was on the last face of an eight-page double-sided packet (including consent forms and questionnaires), and could have simply not been seen by some participants.

The Life & Work questionnaire was written specifically for this survey project with the Offender Needs Assessment in mind. Of course, the ONA is a much better post-test for itself than the L&W questionnaire could be, and for that reason analyses in this publication have focused on comparing ONA need levels at intake with those from

offenders' most recent ONA administration dates instead of searching for patterns in L&W responses.

There were nine items in the L&W dataset that did not fit into any of the seven factors. In addition, the theoretical concepts around which the researcher wrote the L&W questions were similar to, but not the same as, the factors returned by factor analysis based on participant responses. These results suggest that this questionnaire could use revision.

Attitude and Behavior

Finally, it should be noted that the questionnaires in this study only examine attitudes, not behaviors, and the two are not always correlated (Baumeister et al. 2007, Hines et al. 1987). Further, it is based on self-report by a population that is not known for its transparent honesty. There are limitations to consider on self-report among non-prison populations; for example, Hines et al. (1987) found that attitude-behavior correlations were higher in situations where actual behavior was assessed than in cases of self-report of behaviors. These discrepancies in self-reported attitudes and actual behaviors may be exacerbated when conducting research in a prison setting.

Every effort was made to avoid coercion to participate in this study. However, it is possible that participants reported more pro-environmental attitudes than they actually possess, perhaps in an effort to please the researcher (who they knew was a student in an environmental studies degree program, and who some participants knew as an employee of the Sustainability in Prisons Project). Another possible reason for false positive reporting of attitudes may be a belief in the possibility of improved treatment by staff for

being perceived as cooperative (although it was made clear that DOC staff would have no access to individual participants' response data).

Finally, there may be a tendency among offenders to view programs they see as originating outside the Department of Corrections more positively than they see DOC-sponsored programs, since the DOC is the agency enforcing their incarceration. Although SPP is a partnership between WDOC and The Evergreen State College, many inmates perceive SPP Flagship jobs especially as being "Evergreen," not "DOC" programs, and therefore may perceive these work programs more positively than they would otherwise.

Future research

Further research is needed to examine other effects of SPP programming in prisons, both on inmate participants and on other people and organizations involved. As discussed in Chapter 2, including a "pre-test" for all inmates entering the Washington prison system would provide future researchers with the opportunity to administer post-participation tests after a group of inmates engages in an activity that has been hypothesized to affect environmental attitudes. Following a brief discussion of opportunities for research with the existing dataset from this study, this section turns from a focus on inmate participants to examine how other groups' engagement with SPP may contribute to a "culture change" within prison facilities, communities, and perhaps one day, across the U.S. and the world.

Opportunities analyzing this dataset

Some data gathered during this study are yet to be analyzed. An abridged and modified version of Susan Clayton's Environmental Identity Scale (2003) was included in the main survey tool. It would be interesting to compare results from the EIDS to the NEP, and to the demographic, crime, and ONA need-level-change data used in this study.

More detailed analysis of NEP scores, especially among different job types, is warranted. Previous researchers have factor-analyzed the original (1978) NEP and come up with as many as five distinct dimensions (though usually three). Dunlap (2000) prefers treating the entire revised 15-question scale as a single measure, but encourages researchers to factor-analyze using their own datasets to determine how appropriate this is. One component of the revised NEP is the idea of anthropocentrism or human exceptionalism. It would be interesting to see if SPP Flagship workers' scores were higher in this particular factor, insofar as it especially may indicate a higher level of awareness of their impacts on the environment.

Qualitative data analysis of responses to the three open-ended questions in the main survey tool is needed to formally establish and address themes that arose among participants and to compare these themes across job types, index scores, and other variables. Quantitative and qualitative data from the Sustainability Workers' survey (given to experimental group members, roughly two-thirds of the study participants) should also be useful to the SPP as the organization continues to improve and expand its program offerings.

Evaluations involving other SPP stakeholders

Much could be learned from a prison staff survey. Prison administrators are often those who choose whether and how to implement sustainability programming in their facilities. Correctional officers and classification staff, on the other hand, have more day-to-day interactions with inmates than any other group of SPP collaborators. Anecdotal evidence suggests a wide variety of staff attitudes and perceptions about SPP programs exists. Sometimes, ideas for sustainability projects start from these “in the trenches” staff members, who may compost or garden at home and identify a need at the prison. In these cases, staff buy-in for the projects is usually good. However, in other cases staff may feel resentful of being asked to do what they see as additional duties beyond their job descriptions. Prison staff may also be understandably suspicious of some activities that may seem to give inmates more freedom, as they may be seen as a safety risk. Some staff, especially those who work at higher custody levels, may be reluctant to allow what they see as special privileges to some of the most challenging inmates in custody (Nadkarni et al., unpublished data).

A survey of collaborating scientists would be quite interesting. Biologists from state agencies and restoration ecologists from non-profit organizations are active participants or regular consultants on SPP’s captive rearing and restoration programs. The scientists periodically visit the prisons to check in, talk with the inmate technicians, and provide training for newly hired inmates. These relationships are usually long-term and are mediated by graduate students and staff from The Evergreen State College, who provide logistical and day-to-day support for many conservation projects in Washington’s prisons.

The growing number of undergraduate and graduate students working with SPP is another population that has potentially experienced personal and professional growth opportunities through their jobs. Student employment with SPP is limited to the academic years in which a person is matriculated at The Evergreen State College. In May 2013, one undergraduate and eight graduate students were employed part-time as research assistants with SPP-Washington. Several undergraduates have earned internship credit for work with SPP during one or more academic terms. Growing numbers of graduates of The Evergreen State College's Master of Public Administration program and Graduate Program on the Environment have spent significant portions of their academic careers at Evergreen working with SPP as research assistants, interns, or volunteers. Former SPP student-employees could be surveyed several years after graduation to assess the effects that employment with SPP may have had on their careers and personal perspectives in hindsight.

Another opportunity for future research involves educators in SPP's Science and Sustainability lecture series. Monthly lectures at prisons across the state are given by a variety of presenters, including local vermiculture experts, "green" architects, university faculty, and other scientists and sustainability professionals. In contrast to conservation partners or graduate students, these invited volunteers are usually engaged with SPP on a fairly short-term relationship with one prison (in some cases two). Lecturers usually visit just one prison for one day to deliver a presentation or a workshop in their areas of expertise. Anecdotal evidence suggests that these short visits can profoundly affect how these visitors think and feel about inmates' ability to engage in meaningful education, about their potential as employees in the community post-release, and about prisons as

institutions. The SPP currently administers pre- and post-lecture questionnaires for visiting lecturers; analysis of this information is ongoing.

Studies with foci on collaborating scientists and visiting lecturers may shed light on how innovative “inmate scientist” programs like SPP’s may change attitudes and perceptions of people in the public who would not normally interact with prisons as institutions or prison inmates. Prisons and their inmates are often ignored by the public, and when they are considered, they are approached with suspicion or fear; polls suggest a majority of Americans reject the idea of releasing “reformed” offenders (Haghighi & Lopez 1998). However, significant media attention on SPP suggests that perceptions in some areas may be changing. Comparing relevant public opinion polls with SPP media coverage over time may reveal some interesting patterns.

Media and the public often focus on the costs of prisons, both in dollars to taxpayers and to society as a whole. Much interest has been focused on quantifying the benefits of various WDOC programs to various stakeholders (including inmates, staff, taxpayers, volunteers, contractors, etc.). To take this one step further, WDOC approached the Bureau of Justice Assistance and was awarded funding for technical assistance from the Vera Institute of Justice “to build capacity to use cost-benefit analysis (CBA) in its policy and decision making processes” (Margaret Hoyer, personal communication, November 8, 2012). In April 2013, CBA capacity-building workshops were given by Vera representatives at WDOC Headquarters, and a Technical working sub-group was formed to begin CBA of the dog-training and prairie plant propagation programs in WDOC’s facilities. Analyses of other sustainability-related programs may follow. Cost-benefit analyses may begin with quantification of effects and benefits, and

the working group's next step will be to monetize the costs and benefits for the programs' many stakeholders.

Finally, further research is needed on SPP's contribution to ecological restoration. The SPP keeps records on the outputs of its conservation and restoration projects in terms of the number of prairie plants outplanted onto Puget lowland prairies after care at Stafford Creek Corrections Center and Washington Corrections Center for Women. Graduate research assistants keep track of the number of Oregon spotted frogs released into wetlands after captive rearing at Cedar Creek Corrections Center, and the number of Taylor's checkerspot butterflies released onto prairies after rearing at Mission Creek Corrections Center for Women. The SPP and WDOC monitor the number of inmate and student-employee hours spent on conservation and restoration projects, and news stories about SPP are logged and tracked as they may contribute to raising public awareness not just of pro-environmental activity in prisons but of endangered species and ecological restoration issues in Washington. SPP has begun to keep track of the connections it has facilitated between researchers, students, conservation organizations, and prison facilities as a way of quantifying its effects in this area as well. Research projects focused on SPP's overall contribution to restoration efforts in Washington State may illustrate the extent to which involving prisons and inmates in science may boost an organization or jurisdiction's capacity to accomplish restoration and conservation goals.

Positive Psychology in Prisons

As mentioned above, qualitative data from this study remains to be analyzed. However, preliminary analysis indicates that some participants were grateful for the opportunity to reflect on their beliefs, think about personal change, and share their opinions and attitudes

in a safe, anonymous setting. Many participants requested to be notified of the results of the study (with some who will be released before its completion even providing home addresses to facilitate this). Given this encouraging reception, a study based on positive psychology and using a tool such as the VIA-IS (Values in Action-Inventory of Strengths, Peterson and Park 2009), which assesses character strengths, may have a place in prisons.

Positive-psychology-based studies in prisons have been suggested by other researchers (see Wormith et al. 2007), and conducted by only a few (for one example, see Farrell 2008). Positive-psychology programs for offenders have been offered in WDOC facilities for several years (Dan Pacholke, personal communication, May 12, 2013). WDOC's nationwide leadership in sustainability initiatives led to the state's Assistant Secretary of Prisons and Co-Director of SPP, Dan Pacholke, being invited to speak at the World Congress on Positive Psychology, held in June 2013. Mr. Pacholke was invited to present on the SPP and its benefits to incarcerated participants and staff members involved based on the conference's theme of "positive environments, sustainability, and conservation."

The VIA Survey is available as a 240-item or a 120-item Likert-scale questionnaire that asks participants to reflect on their own behavior and beliefs in given situations. Upon completion, it returns a rank-ordered list of each participant's character strengths, in order of prevalence in his or her personality. Inviting offenders to complete the VIA Survey would both evaluate how inmate participants see themselves and provide the participants with an opportunity to reflect on their strengths, rather than their shortcomings. Farrell (2008) used the VIA-IS and another positive-psychology test in a

Canadian women's prison, finding that several character strengths were significantly related to reductions in recidivism.

Interdisciplinarity

The sub-discipline of positive psychology is one of many academic areas that may fit well with SPP's highly interdisciplinary work. With the goal "to reduce the environmental, economic, and human costs of prisons" (LeRoy et al. 2012, Warner 2013), SPP is inherently interdisciplinary. Any study of the organization and its programs, therefore, should be as well. The research reviewed and methods used for this thesis project drew from more than a dozen disciplines and specialties, including: criminology and corrections; environmental, social, and criminal psychology; environmental and social sustainability; environmental and correctional education; public policy and administration; nature, horticulture, and animal therapy; economics; program evaluation; and environmental and social justice.

The interdisciplinary nature of SPP is apparent in its work and job-training programs, which often transcend traditional academic and social boundaries. As more sustainability-related job positions in WDOC facilities incorporate the elements of education/training, work with living things, and opportunities to contribute to the outside community, the inmates working in these assignments will benefit from this interdisciplinary approach. Rather than only learning about waste management, SPP recycling and compost technicians may learn about closed-loop systems, repurposing materials, and restoring what was once thought of as garbage to a useful state. Rather

than learning only about how to grow plants, horticulture workers and prairie restoration crew members may learn about soil science, restoration ecology, fire science, and how their efforts fit into larger movements of ecological and social restoration involving partners as diverse as the Center for Natural Lands Management and the United States Army. And rather than learning only about how to cut down trees, inmates on Department of Natural Resources work crews may learn about ecosystem succession, microclimatology, and management for conservation.

Conclusion

This research project has examined the effects of participation in SPP's prison-based science and sustainability work programs on inmate participants. Its foremost finding is that inmates who work on programs involving the elements of education, work with living things, and the opportunity to contribute to the outside community tend to express more pro-environmental attitudes than other groups, especially inmates working in non-sustainability-related jobs. SPP "Flagship" jobs, which involve high levels of each of these three elements, include work assignments in prairie restoration, endangered species rearing and conservation, and projects that contribute creatively made recycled or repurposed goods to needy or deserving members of the outside-prison community.

Incorporating more of the elements included in "Flagship" jobs into other work assignments, then, may be one way to contribute to the development of more pro-environmental attitudes, which in turn are associated with more pro-social attitudes, among prison inmates. Pro-social attitudes and behaviors may lead to a calmer in-prison

environment, making daily life safer for inmates as well as staff, and leading to safer communities when inmates are released from prison.

SPP's diverse partnerships include inmate technicians as an integral part of the success of its programs, which aim to contribute to cost savings in a number of ways. Waste reduction, recycling, energy savings, and other sustainability initiatives have saved money for individual facilities, the WDOC as an agency, and the state of Washington's taxpayers. Educational and vocational programming such as that offered through the SPP partnership contributes to improvements in offender attitudes which may contribute to greater potential for success in their communities outside prison, reducing the likelihood that offenders will return to DOC custody and increasing their potential to becoming positive, working, tax-paying members of society instead.

As cost-savings is foremost on many governments' minds during this period of economic uncertainty, SPP in Washington has been contacted by state and county departments of corrections and other interested parties across the country who want to learn about the SPP model. Other individuals and groups have reached out to SPP because their interest was piqued by media articles and the potential for synergistic ecological and human restoration is so compelling. As a result of these and other contacts, and the hard work of teams of academics, corrections professionals, and conservation partners across the country, SPP has experienced a year of unprecedented growth nationally. New SPP programs are burgeoning in the state corrections systems of Ohio, Maryland, Utah, California, and Oregon, and in county jail systems along the West Coast.

This study contributes to the efforts of SPP teams in Washington and across the country by providing a small piece of scientific evidence supporting the idea that engaging inmates in science and sustainability-related work programs has the potential to benefit not just offenders and conservation partners, but prison staff, taxpayers, students, and the wider community.

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Appendices

Appendix A: Character of Sample

Appendix B: Mean NEP Scores for a Men's and a Women's Facility

Appendix C: Job Index Subscores Compared to NEP Scores

Appendix D: NEP Score by Age

Appendix E: NEP Scores by Time on the Job

Appendix F: Life & Work Scores by Job Type

Appendix G: ONA Domain Correlations with L&W Factors

Appendix H: Change in ONA Need Results by Job Type

Appendix I: Survey Administration Day Script

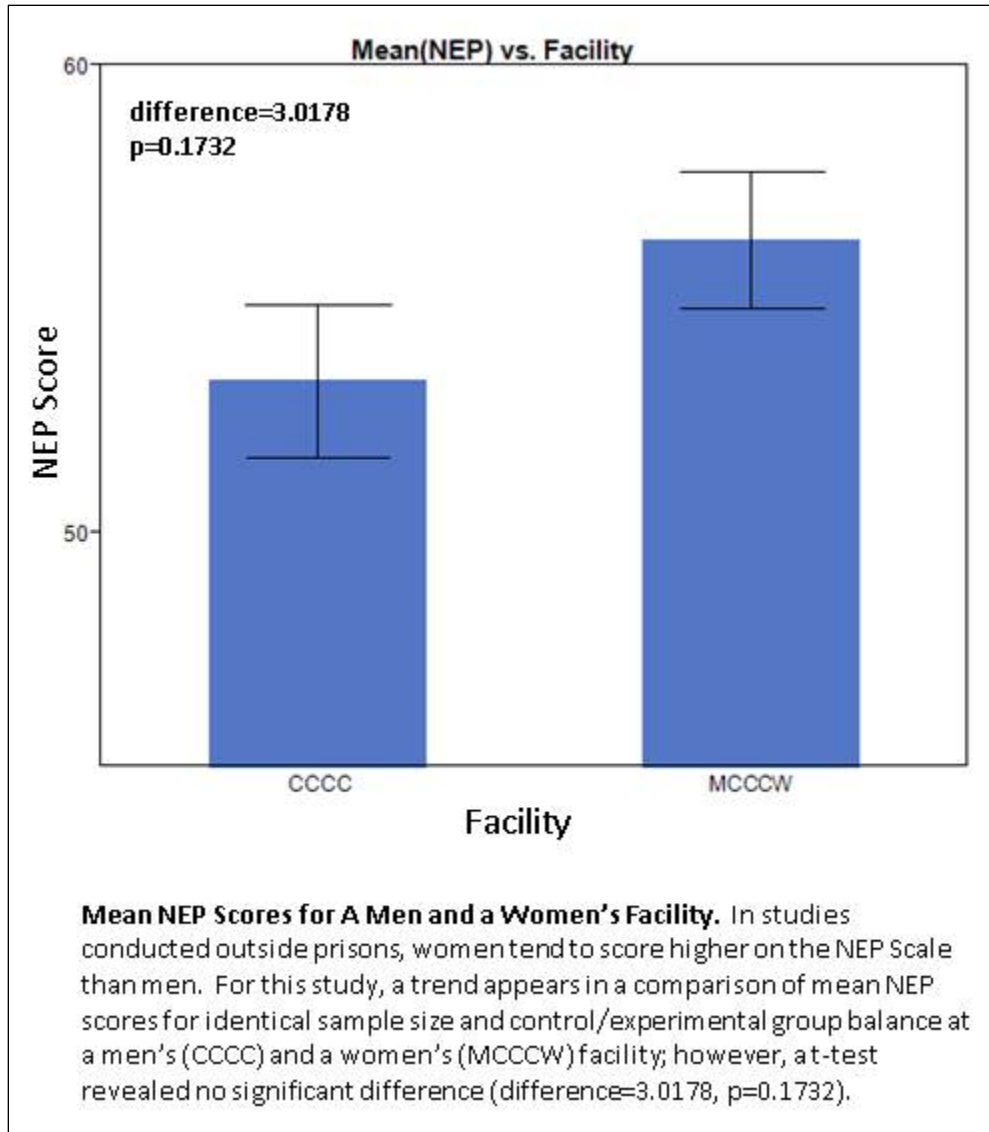
Appendix J: Survey Tools

Appendix A: Character of Sample

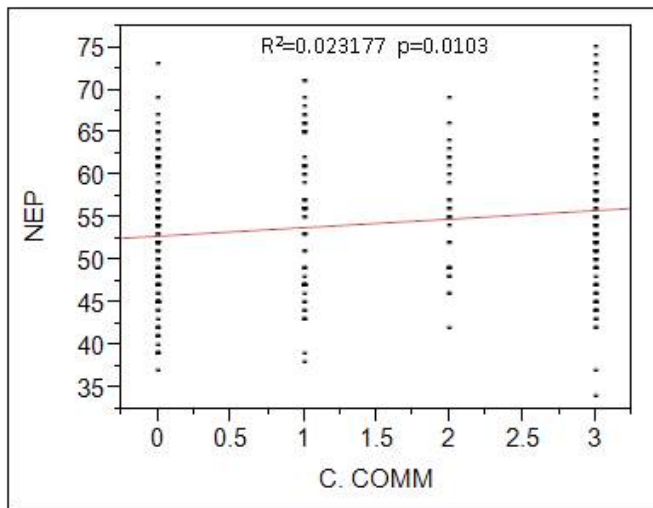
Character of Study Sample Compared to WA State Prisons, WA State, and the United States					
	Sample		Washington State Prisons (as of 3/31/2013)	Washington State (as of 3/2013)	United States
Population	288		17,700 in prison and on work release	6,897,012 (2012)	313,914,040 (2012)
Average Age	37.5		37.8		
<u>Gender</u>	34				
Female	259	88.4%	7.6%	50.1%	49.2%
Male		11.6%	92.4%	49.9%	50.8%
<u>Race</u>					
White	215	73.4%	72%	82%	78.1%
Black	30	10.2%	18.4%	3.8%	13.1%
American Indian	14	4.8%	4.1%	1.8%	1.2%
Asian/Pacific					
Islander	10	3.4%	3.7%	8.2%	5.2%
Hispanic	22	7.5%	11.9%	11.6%	16.7%
Other/Unknown	2	0.7%	1.8%	4.3%	2.3%
<u>Crime Type</u>	(n=271)				
Murder	43	15.9%	1%		
Manslaughter	4	1.5%	0.7%		
Sex Offense	61	22.5%	19%		
Robbery	32	11.8%	4.4%		
Assault	48	17.7%	21.7%		
Property	62	22.9%	16.7%		
Drug	17	6.3%	28.2%		
Other/Unknown	4	1.5%	8.3%		
<u>Admit Type</u>	(n=292)				
Readmit	127	43.5%	43.2%	With data from http://doc.wa.gov/about/doc/docs/ms/FactCard_008.pdf http://quickfacts.census.gov/qst/states/53000.html	
First Admission	157	53.8%	56.8%		
Other	8	2.7%			

Note: some percentages total more than 100 due to participant identification in multiple races.

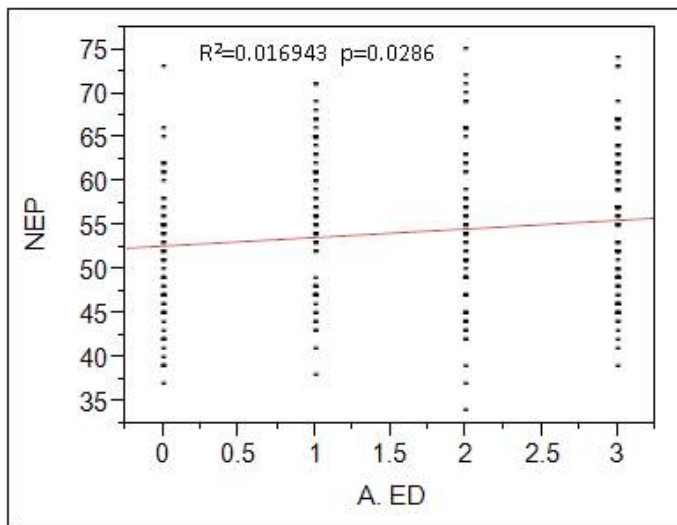
Appendix B: Mean NEP Scores for a Men's and a Women's Facility



Appendix C: Job Index Subscores Compared to NEP Scores

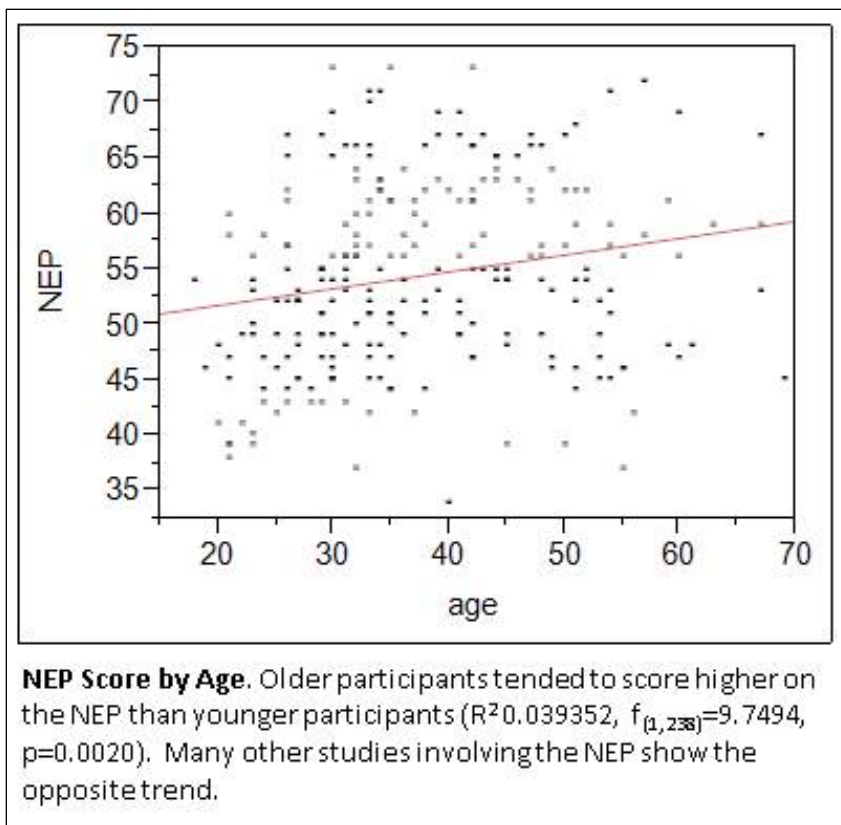


NEP Score by Community Contribution Job Index Score. A linear regression shows a weak but statistically significant relationship between NEP score and Community Contribution Job Index Score ($R^2=0.023177$ $p=0.0103$). This indicates that inmates with more of an opportunity to contribute to or collaborate with the outside community as a part of their jobs in prison tend to express more pro-environmental attitudes than those with less community interaction.

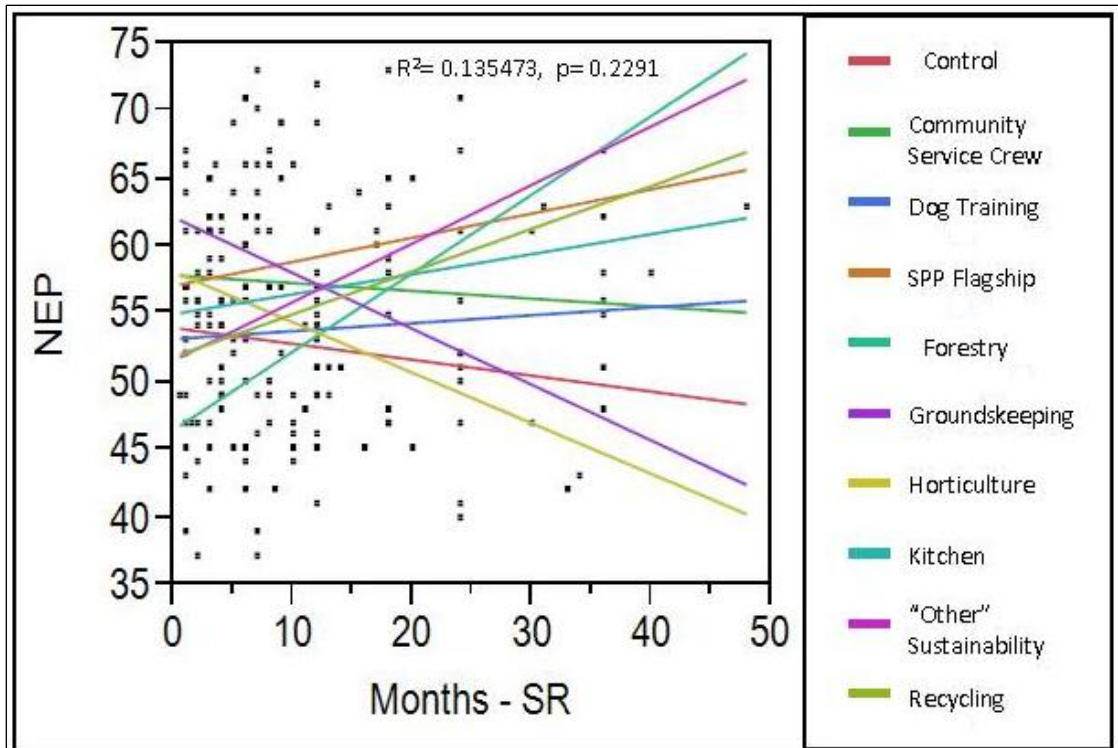


NEP Score by Education/Training Job Index Score. A regression shows a weak but statistically significant relationship between an inmate's NEP score and the degree to which academic education or vocational training is a part of his or her job assignment ($R^2=0.016943$ $p=0.0286$).

Appendix D: NEP Score by Age

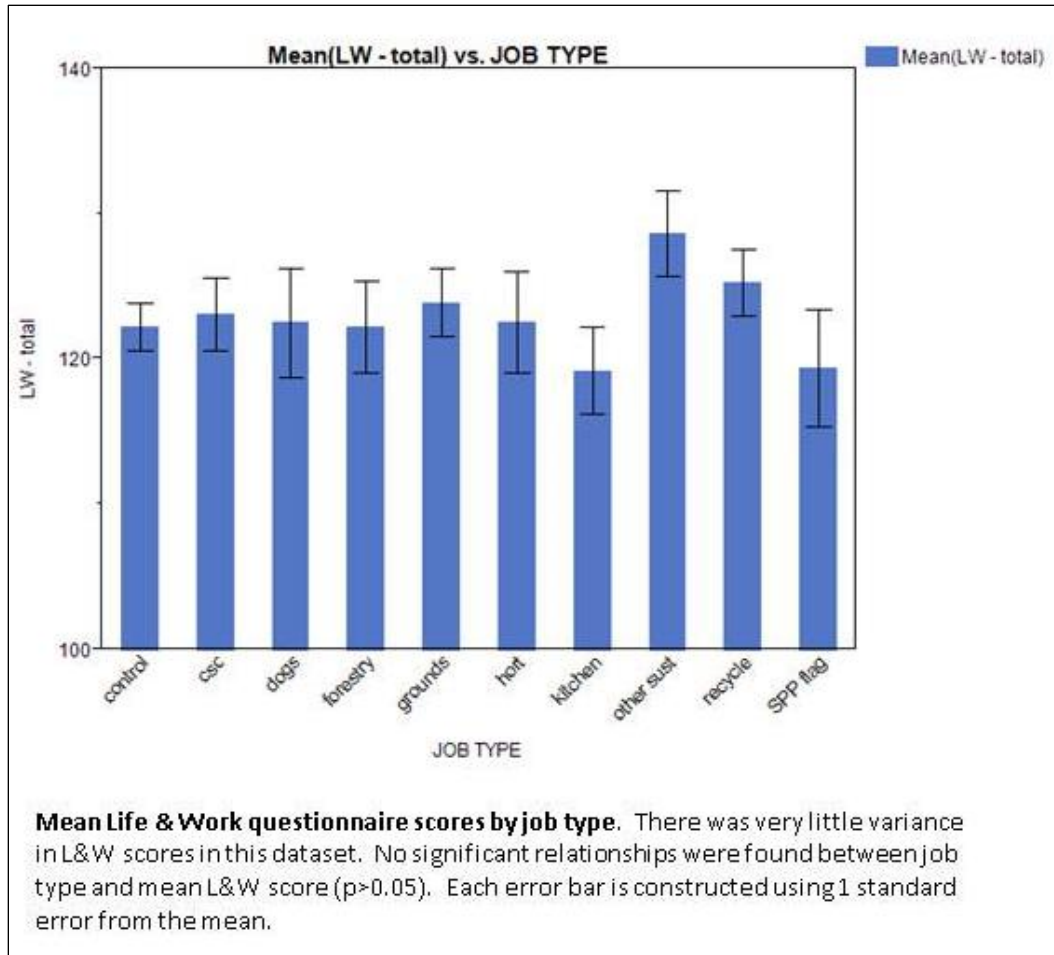


Appendix E: NEP Scores by Time on the Job

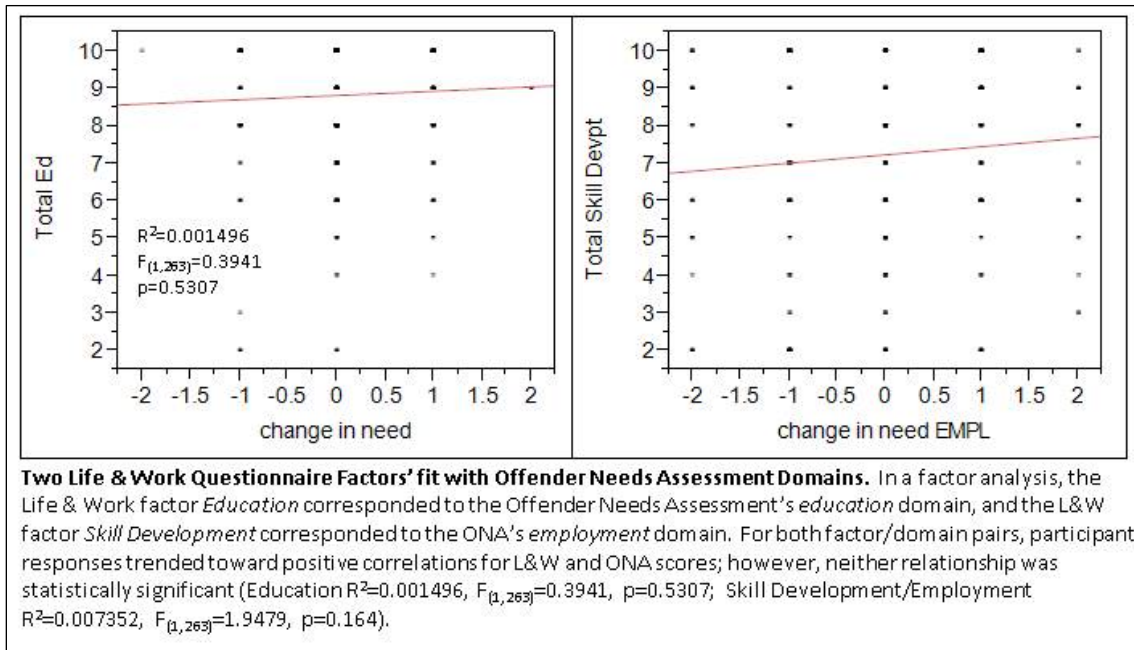


Trends in NEP Score Based on Time Spent in 10 Job Types. Study participants' NEP scores varied greatly, including based on self-reported number of months spent in their respective jobs. No statistically significant relationship was found between months on the job and NEP score for the overall sample ($R^2 = 0.135473$, $p = 0.2291$), although single regressions for some job types showed relationships.

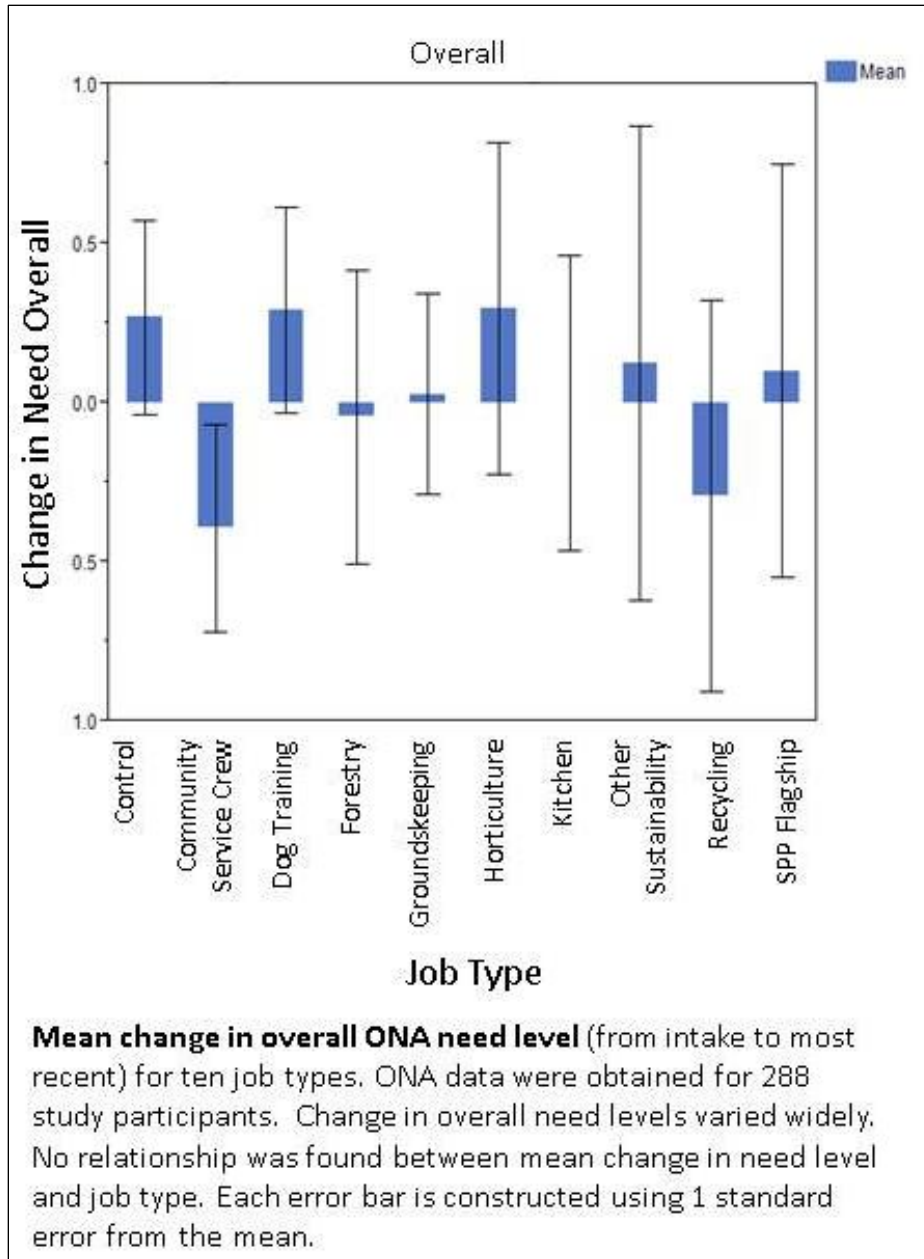
Appendix F: Life & Work Scores by Job Type

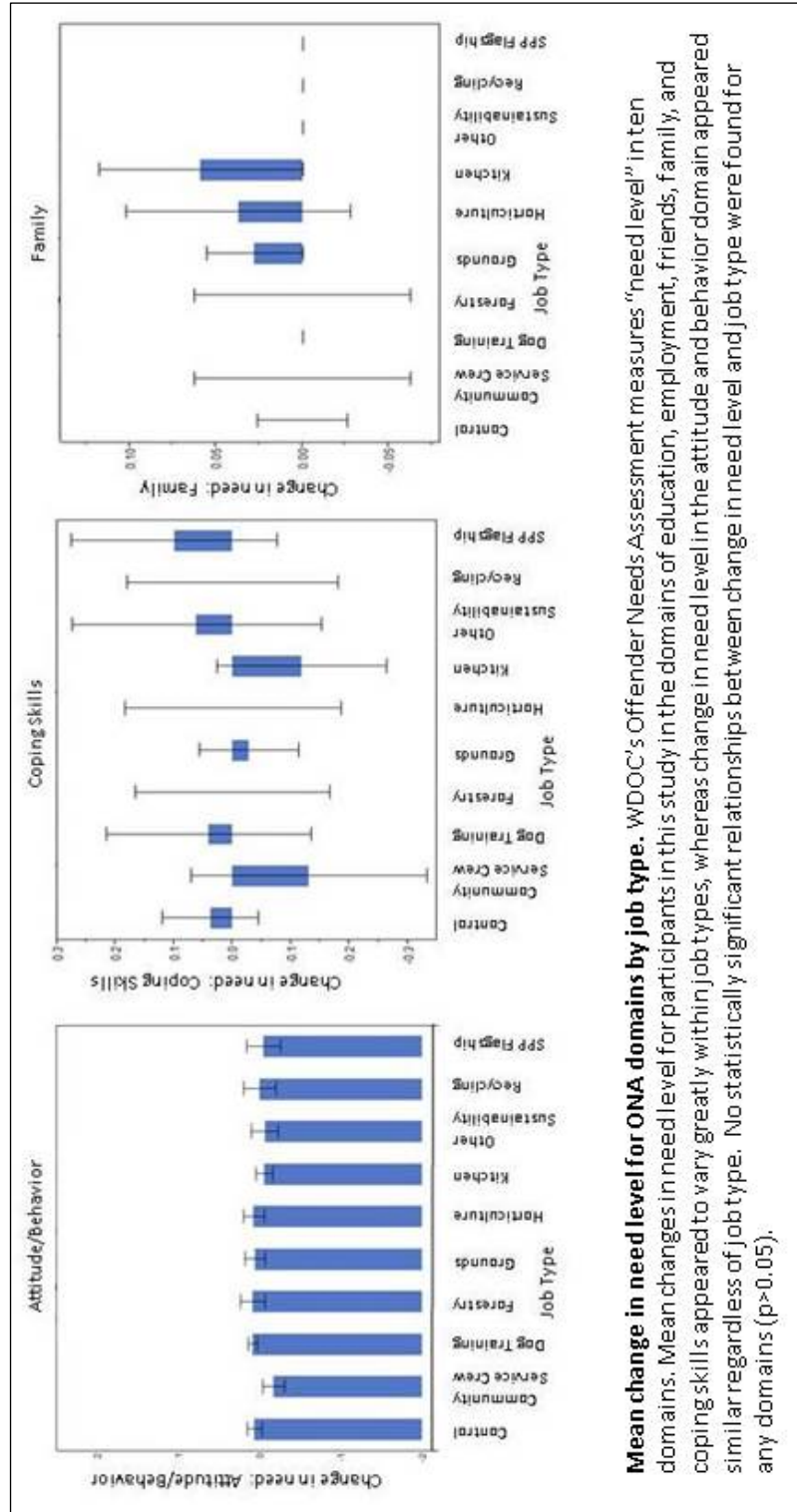


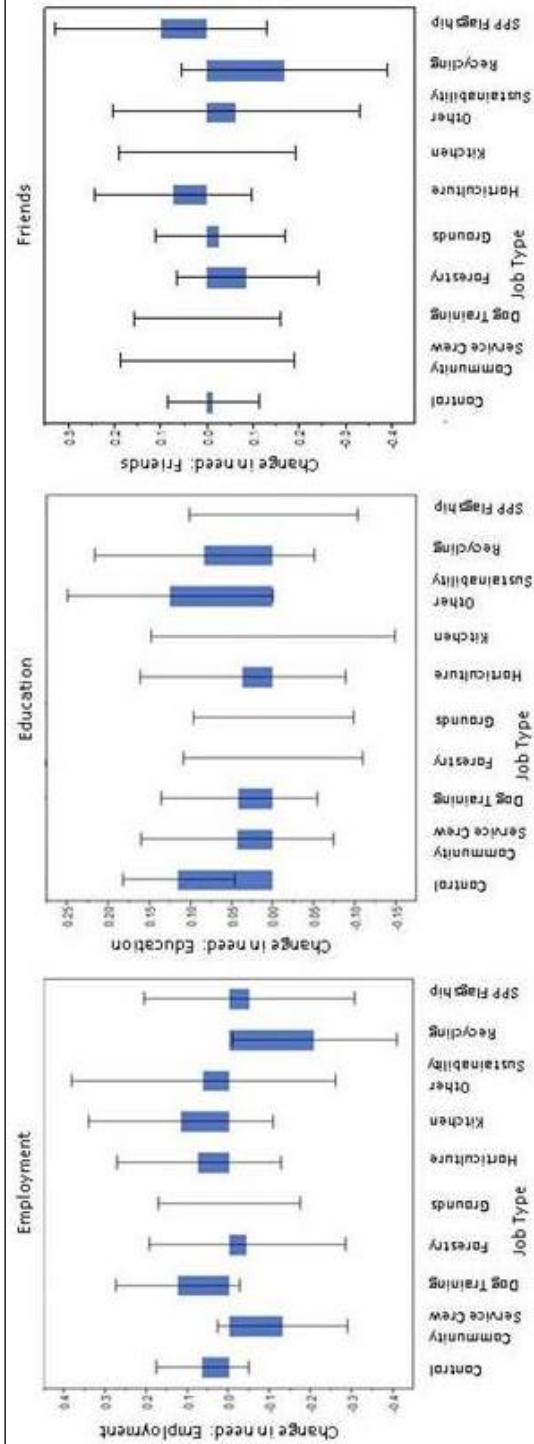
Appendix G: ONA Domain Correlations with L&W Factors



Appendix H: Change in ONA Need Results by Job Type







Mean change in need level for ONA domains by job type. WDOC's Offender Needs Assessment measures "need level" in ten domains. Mean changes in need level for participants in this study in the domains of education, employment, friends, family, and coping skills appeared to vary greatly within job types, whereas change in need level in the attitude and behavior domain appeared similar regardless of job type. No statistically significant relationships between change in need level and job type were found for any domains ($p > 0.05$).

Appendix I: Survey Administration Day Script

Survey administration script: _____

Date: _____

Thank you for coming. I know some of you may be confused about why you were called out to be here today, so I will explain a little bit.

I'm Brittany Gallagher, and I'm a graduate student at The Evergreen State College in Olympia. As part of my master's thesis research, I am visiting nine WA prisons to conduct inmate surveys. The surveys ask questions about your work placement while you have been here at _____, how you feel about your job, and about the environment and your relationship to it. Depending on the type of work you have had here, you may have one or two surveys.

If you're currently employed, you ARE getting paid right now as if you were at your job. If you're not working right now, think back to your most recent job at this facility to answer questions pertaining to work.

The results to this survey will NOT be attached to your name or DOC number, even though we do ask you to sign the consent form and print your name. The consent form is the first thing in your packet and should answer some of the questions you may have right now.

Most of the questions ask you to rate how much you agree with a statement with a number 1-5, with 1 being strongly disagree and 5 being strongly agree. If this gets confusing or you forget partway through, the scale is up at the top of each section.

The first survey is a bit long and has three parts - please take a look:

1. questions about nature and the environment
2. questions about life and work, and
3. questions about sustainability

Two of the three of these parts are widely used as surveys across the country in all sorts of institutions and settings.

There are also chances for you to write in narrative responses at the end of each section - please feel free to make comments there. I suggest taking a little brain-break between each section of this survey so you can think really clearly about all of the questions.

We have blocked out one hour for you to fill out the surveys, so please take your time. You may use up to two hours if you need the time, just let us know.

For those of you who will be invited to fill out the second survey too, there are more of the same types of questions - narrative and scaled 1-5 questions. Please be as detailed as you like on both surveys.

In about six months, I will report what I've learned, and I plan to share it with you. So I'll be sending you each a letter explaining what I learned from these surveys and the recommendations I plan to make to the SPP and DOC.

The surveys are completely optional; even though we called you here you can choose not to fill one out. It will be helpful to me and my project if you do fill them out and do so as honestly and completely as you can. If you decline, please let me know so I can mark you as present. You may choose to start filling a survey out and to skip a question if it makes you uncomfortable. The consent form included in your packet gives you more information about this. Please read and sign it before you start your survey(s).

Any questions right off the bat?

Thank you for being here and taking the time to do this. I really appreciate it. Please feel free to ask any questions that may arise. We have the room until _____, so go ahead and get started with that consent form.

Appendix J: Survey Tools

Main Survey Tool

Questions about Nature and the Environment

Please rate the extent to which you agree or disagree with the following statements.

- | | 1 | 2 | 3 | 4 | 5 |
|---------|---|---|-------------------------------|---|----------------|
| | Strongly Disagree | | Neither agree
nor disagree | | Strongly Agree |
| ____1. | Before being incarcerated, I spent a lot of time in natural settings (woods, mountains, desert, lakes, ocean). | | | | |
| ____2. | Engaging in activities that help the environment is important to me. | | | | |
| ____3. | I think of myself as a part of nature, not separate from it. | | | | |
| ____4. | When I am upset or stressed, I can feel better by observing the natural world or working with living things such as animals and plants. | | | | |
| ____5. | Living near wildlife or a near a natural place is important to me; I would not want to live in a city all the time. | | | | |
| ____6. | I have a lot in common with environmentalists as a group. | | | | |
| ____7. | I feel that I have a lot in common with other species. | | | | |
| ____8. | I have roots to a particular place that had a significant impact on my development. | | | | |
| ____9. | I feel that my own interests will sometimes be in conflict with the goal of preserving the environment. | | | | |
| ____10. | Learning about the natural world should be an important part of every child's upbringing. | | | | |
| ____11. | I don't pay much attention to environmental issues. | | | | |
| ____12. | I would rather live in a small house with a nice view than a bigger house with a view of other buildings. | | | | |
| ____13. | I really enjoy being outdoors. | | | | |
| ____14. | I have never seen a work of art that is as beautiful as a work of nature, like a sunset or a mountain range. | | | | |
| ____15. | I like to garden. | | | | |
| ____16. | I feel that I receive spiritual sustenance from nature. | | | | |
| ____17. | I don't really care what part of the country I live in. I don't pay much attention to my surroundings. | | | | |
| ____18. | When I am in a natural setting it is easier for me to relax. | | | | |

Questions adopted from Clayton (2003) and Dunlap & Van Liere's NEP (2000), and based on WA-DOC ONA.

Please add any other comments you would like to share about your relationship to nature, the environment, or the outdoors in the space below.

Questions about Life and Work

Please rate the extent to which you agree or disagree with the following statements.

- | | 1 | 2 | 3 | 4 | 5 |
|---------|--|---|-------------------------------|---|----------------|
| | Strongly Disagree | | Neither agree
nor disagree | | Strongly Agree |
| ____19. | While incarcerated, I have gained skills that will help me function in society. | | | | |
| ____20. | Formal education is not important for success. | | | | |
| ____21. | I am interested in vocational education or job skills training. | | | | |
| ____22. | While incarcerated, I have developed skills that will make it easier for me to find work upon release. | | | | |
| ____23. | I have a good relationship with my work placement supervisor. | | | | |
| ____24. | I have difficulty working with co-workers. | | | | |
| ____25. | I will not be a good influence on my friends and family post-release. | | | | |
| ____26. | My family/friends outside prison know what sort of work or educational programs I am involved in here. | | | | |
| ____27. | I don't make friends easily. | | | | |
| ____28. | I have adjusted to prison life and am making the best of my situation. | | | | |
| ____29. | I would like to continue my education. | | | | |
| ____30. | I think things through now better than I did before I came here. | | | | |
| ____31. | My co-workers respect me. | | | | |
| ____32. | I will return to a community that I am an important part of outside this prison. | | | | |
| ____33. | I have the skill and resources I need to succeed outside prison. | | | | |

Questions adopted from Clayton (2003) and Dunlap & Van Liere's NEP (2000), and based on WA-DOC ONA.

- ____ 34. My relationship with my family has improved since I have been incarcerated.
- ____ 35. I maintain friendships outside this prison.
- | | | | | |
|-------------------|---|-------------------------------|---|----------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly Disagree | | Neither agree
nor disagree | | Strongly Agree |
- ____ 36. My physical health has improved since I was first incarcerated.
- ____ 37. I wish I was in better contact with my family.
- ____ 38. My supervisor / instructor respects me as a person.
- ____ 39. I have learned how to control my anger better since coming to prison.
- ____ 40. I don't feel like I am part of a community inside this prison.
- ____ 41. I did not have anger issues before coming to prison.
- ____ 42. My work in prison is source of stress.
- ____ 43. I worry about my future and prospects post-release.
- ____ 44. It will be difficult for me to adjust to life outside prison.
- ____ 45. My mental / emotional health has improved since I was first incarcerated.
- ____ 46. Prison has not changed me.
- ____ 47. I have things to teach friends, family and community once I am released.
- ____ 48. I experience more stress in prison than I did before I came here.
- ____ 49. I handle stress in prison better than I did on the outside.
- ____ 50. Through my work I make important contributions to the prison and/or outside community.

Please share any other comments you care to about how you have grown or changed during your time in prison in the space below.

Questions adopted from Clayton (2003) and Dunlap & Van Liere's NEP (2000), and based on WA-DOC ONA.

Questions about Sustainability

Please rate the extent to which you agree or disagree with the following statements.

- | | 1 | 2 | 3 | 4 | 5 |
|--|-------------------|---|-------------------------------|---|----------------|
| | Strongly Disagree | | Neither agree
nor disagree | | Strongly Agree |
-
- ____51. We are approaching the limit of the number of people the earth can support.
 - ____52. Humans have the right to modify the natural environment to suit their needs.
 - ____53. When humans interfere with nature, it often produces disastrous consequences.
 - ____54. Human ingenuity will insure that we do not make the earth unlivable.
 - ____55. Humans are severely abusing the earth.
 - ____56. The earth has plenty of natural resources if we just learn how to develop them.
 - ____57. Plants and animals have as much right as humans to exist.
 - ____58. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
 - ____59. Despite our special abilities, humans are still subject to the laws of nature.
 - ____60. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
 - ____61. The earth is like a spaceship with very limited room and resources.
 - ____62. Humans were meant to rule over the rest of nature.
 - ____63. The balance of nature is very delicate and easily upset.
 - ____64. Humans will eventually learn enough about how nature works to be able to control it.
 - ____65. If things continue on their present course, we will soon experience a major environmental catastrophe.

Please share any other comments you have about humans and our relationship to the environment in the space below.

Thank you for participating in this survey.

Questions adopted from Clayton (2003) and Dunlap & Van Liere's NEP (2000), and based on WA-DOC ONA.

SPP Participant Survey

Part I: Background Information

This part of the survey is to identify which programs you are participating in, why, and how long you have been participating in them.

Name: _____ DOC#: _____

1. What job or program(s) are you now involved in at this facility? Please be as specific as possible.

2. How long have you worked on the project above? _____ months/years
(circle one)

3. Please describe your current job in detail:

4. Why did you choose to work on this program over other programs?

Part II: Working on the Project

This part of the survey is focused on your work experiences and how you feel the project has contributed to your overall understanding of environmental sustainability.

Please describe your own personal experiences while working on a sustainability project. Please use the following scale to rate your answers:

1 = **Strongly Disagree** 2 = **Disagree** 3 = **Neither Disagree nor Agree (Neutral)**

4 = **Agree** 5 = **Strongly Agree** n/a = **Choose Not to Answer**

When answering the questions in the survey, please **darken** the circle corresponding to the response you choose. Please read each questions carefully and answer as honestly as possible.

Sustainability	SD	D	N	A	SA	CNA
5. Endangered species are ecologically important.	①	②	③	④	⑤	n/a
6. I have seen or heard media coverage related to my project and/or the Sustainability in Prisons Project (SPP).	①	②	③	④	⑤	n/a
7. I understand how my work contributes to projects outside of DOC.	①	②	③	④	⑤	n/a
8. Work with the SPP has increased my interest in science and sustainability.	①	②	③	④	⑤	n/a
9. I talk to others about my work with SPP.	①	②	③	④	⑤	n/a
10. I would like more education on science and sustainability topics.	①	②	③	④	⑤	n/a
Job Skills	SD	D	N	A	SA	CNA
11. I have developed new job skills as a result of this program	①	②	③	④	⑤	n/a
12. I have the training and resources I need to efficiently do my work.	①	②	③	④	⑤	n/a

13. Do you think science relates to your everyday life? If so, how?

14. Has participating in a Sustainability in Prisons Project program influenced your career plans after release? If it has, please describe how.

15. How could the program you participated on be improved for other participants?

16. Comments: We would appreciate any additional comments you would like to provide.

On behalf of the Sustainability in Prisons Project, the Washington State Department of Corrections, and The Evergreen State College, we thank you for your participation.