Breaking in: Educating Prisoners through Environmental Literacy

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Abstract

How can the impact of the environmental movement broaden to underserved communities? Our project involved seeking nontraditional allies in prisons, working with Mt. McGregor Correctional Facility in Wilton, NY to implement an environmental literacy program for inmates. Literature, film, and interactive activities introduced inmates to topics from climate change to green jobs. We used pre- and post-surveys to evaluate the program and made suggestions for future Skidmore/prison collaboration in the field of environmental studies.

1. Introduction

Human adaptation to shifts in the natural world has occurred slowly and sparsely, and the current state of the environment necessitates that a more all-encompassing movement arise to address the unsustainable nature of developed societies. A gap currently exists between scientific research and public understanding, and it is important to bridge that gap for a sustainable future. Few recognize the ways in which society and the environment interact with and impact each other, and, as a result, minimal organized change can occur. Expansion of environmental education efforts, especially into areas that have historically remained out of reach of this type of education, has the potential to grow new movements. Inmates in the United States represent one population excluded from the sphere of environmental education; they remain enclosed in concrete buildings with limited exposure to nature and environmental concepts. By extending environmental education lessons to prisoners, we can reach a portion of society that is currently excluded from the environmental movement (Jones 2008). The interdisciplinary field of environmental education incorporates knowledge, perceptions, and action as its key components, aiming to instill in students an inspiration to pursue positive change (Sobel 2012). In this way, we can begin to connect science, education, and society inside and outside of prisons, building a larger environmental movement by creating a foundation for small movements in nontraditional areas.

1.1 Environmental Education

Environmental education represents an arena of vast potential for opening public perspectives to the interrelatedness of human lives with natural environments. It focuses on the exploitation and degradation of the natural world as critical problems, connecting the needs, interests, and perspectives of a variety of people through environmental conservation (Opotow *et al.* 2005). Many people remain unaware of their innate connection to the natural world, and therefore see no conflicts between excessive use of resources and measurable deterioration of Earth's systems and biological integrity. Reaching out to people who believe that humans and nature do not shape each other should take place across all spectrums of society. In the past, certain groups have been excluded from environmental campaigns (Jones 2008). As a result, some groups may not realize their role in building a cohesive environmental movement in the world today. Jones expresses, "Working class people, people of color, religious leaders and groups, and other nontraditional constituencies also need to step up to the plate...all of us must step forward,

take responsibility, and say in our own voices: 'This is our Earth, too. We are going to be a part of saving it'" (Jones 2008).

Environmental education can begin to address both the exclusivity of previous environmental initiatives and the overarching rejection of environmental sensitivity in modern society, by reaching out to one group of individuals in one institution at a time. Students of environmental classes can relate what they are studying to their own lives and make deeper connections with the natural world. The interdisciplinary nature of environmental education also allows students to view environmental issues from numerous perspectives and form a stronger relationship with their communities through volunteerism, green employment opportunities, and activism. This prepares students of any age to meaningfully contribute to a world of ecological and cultural sustainability. Efforts to improve environmental quality cannot be truly sustainable if future generations forget why upholding environmental and community integrity are important. Therefore, environmental education must teach that sustainability includes the recognition of human-nature connectivity. To enhance collective environmental consciousness and support pro-environmental attitudes, it is vital to make allies for the natural world in nontraditional communities. Outreach through environmental education to these non-represented communities such as the incarcerated population is a way to strengthen the environmental movement.

1.2 Need for Environmental Education in Prisons

Prisons and incarcerated persons represent opportunities for encouraging new environmental knowledge and developing non-traditional environmental allies. One indication of their potential is derived simply from the sheer size and growth of the institution. The United States prison system is growing to such a degree that overcrowding has become a pressing issue. About a quarter of the world's prison population can be found in the United States' prison system (Walmsley 2011). Clearly, the United States operates under a flawed justice system—incarceration rates have increased despite decreases in crime rates (Weismann 2009). Most prisons and correctional facilities do not provide the conditions necessary through which an inmate can adequately prepare for reentry into society (Weiman 2007). In three years, about half of released prisoners recidivate, which is measured by criminal acts that result in a former inmate's re-arrest, reconviction, or return to prison (Pew Center 2011). These statistics demonstrate the severe need for a reform in the ways inmates spend their time while behind bars. Recidivism can be reduced if prisoners become more involved in education programs (Visher et al. 2010). Academic and vocational training provide inmates a productive outlet for channeling their energy and time. Because inmates participate in education programs with the understanding that educational engagement during prison can increase opportunities upon reentry into society, these programs are highly successful (Vacca 2004).

Unfortunately, there is little to no funding for these programs. Sustaining overcrowded prisons and paying for repeated incarcerations require federal or state formulas to borrow or tax other discretionary expenditures such as cutting costs for higher education. Government spending on prisons was about $75 billion in 2008 (Schmitt *et al*. 2010). Instead of continuing to release and re-arrest improperly rehabilitated offenders, a more valuable use

of funds is an investment in education programs for prisoners. Improving academic and social skills of inmates has a great potential to mitigate the transition from prison back into society. Hudson Link, which provides higher education in prisons, exemplifies the impact academic programs can have on incarcerated men and women. The association graduates inmates through Mercy College, and boasts a zero percent recidivism rate for graduating participants (Pica 2013).

There are several reasons why the movement to increase and improve educational programming in prisons should focus on environmental themes. Environmental education can address and build upon the inmates' knowledge and perceptions (attitudes) about the environment, with the overarching goal of influencing their actions and behaviors (Sobel 2012). Inmates need accurate and extensive knowledge to form positive attitudes on the environment. If this attitude is adequately formed, a positive perception can inspire action and productive behaviors. Ideally, the behavior of inmates who participate in environmental education programs will not only be less violent or destructive, but also will build some degree of environmental appreciation, stewardship, or advocacy that did not previously exist. Enhancing the environmental understanding of prisoners can offer renewed hope for job placement, by instilling themes of self-sufficiency and human harmony with nature, and by providing ideas to rejuvenate inmates' relationships with their communities and families. Overall, environmental learning encourages released prisoners to be productive members of society upon reentry.

The environmental movement has largely excluded low-income and minority populations from the reaches of its attention and its realized benefits (Jones 2008). A large portion of the incarcerated population consists of marginalized people from uneducated and low socioeconomic backgrounds. The median pre-incarceration income of prisoners during their last full year of freedom was nearly one-third of the national median income for full-time workers. In 2004, about 60 percent of state prisoners had completed high school in contrast to 82 percent of the national population (Harlow 2003). In 2011, the country's imprisonment rates for state and federal prisons were less than 0.5 percent for white males, 1.3 percent for Hispanic males, and 3.1 for Black males (Carson and Sabol 2012). Therefore, extending the environmental movement to prisons to include the concerns of underserved populations provides opportunities for inmates to productively use their time in prison to gain skills sets and knowledge and meaningfully contribute to society when released.

1.3 There are several new and exciting models of environmental education in prisons. Here, we describe two: the *Sustainability in Prisons Project* and *Roots of Success*.

***Sustainability in Prisons Project*:** Dr. Nalini Nadkarmi of Evergreen State College started the "Moss-in-Prison" project to research moss horticulture practices with the help of inmates at the Cedar Creek Corrections Center (Nadkarmi 2006). The project provided prisoners educational stimulation and a view into ecological research (SPP Blog 2012). With the backing of the Washington State Department of Corrections (WDOC), Evergreen State piloted a series of initiatives at Cedar Creek. The success of these programs led to the establishment of the Sustainability in Prisons Project (SPP) in 2008 and the expansion of

the program to other correctional facilities throughout Washington State. The mission of the SPP is to bring science and sustainability to prisons to reduce their environmental impact and to improve environmental stewardship and community (SPP Blog 2012). To accomplish their vision of integrating inmates with science education and environmentalism, the SPP runs a lecture series, scientific research, green-collar education and training, and sustainable practices in prisons. The research projects generate publishable findings and models for other institutions as well as give inmates the opportunity to learn about science and nature and engage in hands-on activities that foster leadership, responsibility, and teamwork. In an article on Cedar Creek, an inmate Dan Travatte describes the positive impact beekeeping has made on his life: "'It's fun for me to keep track of different experiments, trying different things, and see what happens. It gives us something to talk about besides drugs, criminal activities. I've been to quite a few prisons and I can tell you, when I get bored, I get in trouble"' (Schwartzapfel 2010). The inmates are appreciative and proud to partake in the SPP research projects, and many exemplify this with their continuation in the program after they complete their sentence.

The educational lectures bring outside professionals to teach prisoners and provide opportunities for inmates to get out of their cells and learn new and unconventional topics (SPP Blog 2012). In a report analyzing the effectiveness of the SPP lectures, one inmate expresses, "'the people who go to see them (the lectures), the ones in my building that I talk to want to know if they are going to have more and they are really interested. It's like wow, it's amazing for how many people came up to me asking if they are going to have more of the seminars. It's amazing'" (Clarke 2011). Staff members also note a shift towards more positive interactions in the prison- the lectures open inmates' minds and give them an outlet to have conversations that do not get them in trouble (Clarke 2011). This fosters a sense of community and diminishes social barriers between inmates and between inmates and staff. (SPP Blog 2012)

Instilling environmental and sustainable education, the SPP facilitates the interaction and exchange of ideas between two separate entities in society today: the science community and prison populations. We have adapted the principles of the SPP to McGregor State Correctional Facility in attempt to bring environmental education and sustainable practices to improve prisons in New York State.

Roots of Success: Van Jones and Raquel Pinderhughes founded Roots of Success to provide ecoliteracy for at risk communities. Pinderhughes conducted research on the likelihood of underserved populations getting hired in the green economy and discovered that green employers are not looking for people with high levels of education; instead, they want people with basic work skills such as being responsible, on time, and good at communicating (Pinderhughes 2006). They are also more likely to hire people who understand the fundamental environmental knowledge driving their work. Roots of Success trains staff and inmates within prisons to teach a rigid environmental literacy curriculum, making underserved populations more competitive in the green economy and helping green businesses find qualified employees (Flores). By training people in prisons, they create a sustainable program that can be continued without outside help.

Jones noted that “Roots of Success is the missing ingredient in the green collar jobs landscape: an accessible curriculum that helps people break the cycle of poverty by providing needed job and academic skills while empowering them to improve environmental and public health conditions in their communities” (www.rootsofsuccess.org, 2013). The program focuses especially on the literacy level of inmates because they are trying to communicate complex information while fostering a deep understanding and connection to ecological concepts at the same time. To do this, they have a prewritten script, which allows the program to be replicated and engage the prisoners in a more structured way. The script is in the form of a workbook with ten modules representing major environmental themes for the inmates. The program gives a diploma at the end of the course, and it is now being recognized by green industries across the nation and accepted for continuation credits in higher education.

1.4 Scope and Overview of Study

Our aspiration is to help engender environmental sustainability in prisons. We are working with the McGregor Correctional Facility, a medium security prison 15 minutes away from Skidmore, to promote environmental literacy. We aim to bring environmental concepts into the realm of inmates’ perception through an environmental literacy program. We want to inspire inmates to return to their communities once out of prison and contribute in ecologically responsible ways, such as volunteering with environmental agencies, pursuing green jobs, and extending information about the environment to others.

The research questions guiding this study include: 1) What are the most effective ways to teach prisoners about the environment? 2) Does involving inmates in an environmental literacy program alter their knowledge and perceptions on environmental issues? 3) How can prisoners benefit from an environmental education program? To answer these questions, our capstone objectives include: 1) engaging the McGregor Correctional Facility community in an environmental literacy curriculum 2) understanding inmate awareness of environmental issues before and after book and movie discussions 3) measuring the effectiveness of the environmental literature discussions on the prison 4) developing guidelines for the continuation of a sustainability education program in the prison. To support that work, we proposed, developed and delivered an environmental literacy curriculum for inmates at McGregor Correctional Facility.

2. Methods

The site of our capstone project was at the Mount McGregor Correctional Facility in Wilton, New York. It is an all-male medium security state prison and located fifteen minutes from Skidmore’s campus. For our project, we engaged 20 male inmates in an environmental literacy program. The inmates signed up voluntarily, but those finally selected had the best behavior records. About sixty-three percent of the inmates at McGregor have the equivalent of a high school degree; therefore, we developed our curriculum to correspond to the majority of inmates’ education level. We taught a total of four two-hour classes over the course of six weeks.

To initiate working with the prison, we submitted a proposal of our project to the Department of Corrections (DOC) at McGregor and then to the DOC in Albany. The first draft of the proposal was centered on sustainability in prisons, but the idea to build a garden with the inmates at McGregor was rejected by the DOC. We chose to align our project idea more closely with the prison's mission statement, which is "to improve public safety by providing a continuity of appropriate treatment services in safe and secure facilities where offenders' needs are addressed and they are prepared for release, followed by supportive services under community supervision to facilitate a successful completion of their sentence." The McGregor DOC recommended we have a professor with us in the classroom and that they would approve a "sustainable book group," so we worked within that framework to write a new proposal for an environmental education curriculum for inmates. The DOC for both McGregor and Albany finally accepted the second draft of our proposal. Then, we went through a two-hour volunteer training program to prepare us to interact with the inmates.

Using the Sustainability in Prisons Project as a model, we constructed a pre- and post-survey to gauge the inmates' understandings of environmental issues, knowledge of green jobs and their personal interactions with nature before and during incarceration (LeRoy). It allowed us to understand how the prisoners digested the information and allowed them to make recommendations and give us feedback on the program. In addition to the SPP survey, we developed several open-ended questions and questions using the Bogner model Likert scale (Schneller 2008). We handed out the pre-survey at our first class and the post-survey at our last class. The post-survey had the same questions as the pre-survey with a few additional questions asking the inmates' opinions on the usefulness of the environmental literacy program. These surveys gave us insight on the inmates' changes in attitudes and knowledge of environmental issues, as well as the effectiveness of our program.

We recognize that administering a post-survey immediately after we finished giving the inmates information had the potential to affect our results. Ideally, we would have waited at least a week after our program ended to have them complete this post-survey, but we were not approved for another visit and therefore had to collect it during our final teaching session.

Our curriculum included two books, *Hoot* by Carl Hiaasen and *Green Collar Economy* by Van Jones, and the movie *WALL-E* to prompt the prisoners to read and write. We chose these books keeping in mind that (1) the prison must pre-approve the books/film we would use in our classes and (2) we would have an incomplete knowledge of each inmate's reading level. Therefore, we researched easy-read young adult novels with environmental themes.

We selected *Hoot* because while it is written for younger readers, the style is mature and the prevalence of some "dark" linguistic elements makes the book appropriate for diverse reading levels. We also chose *Hoot* for its content; the main environmental themes represented are anti-development and conservation of a protected species. Other topics surface as well, such as citizen activism, the intrinsic value of nature, and the importance of nature in urban environments. Also, the novel touches on the lack of awareness with which the general public regards nature. At the conclusion of the book, characters become aware

of the natural ecosystems in their community. Hence, the novel promotes recognition of human coexistence with nature. Because of the environmental themes in *Hoot*, the book complements our instructional purposes for the second module of our environmental literacy curriculum, in which we chose to focus on urban developments impacting ecosystems. Further, *Hoot* seemed like a good fit because of its alignment with the prison's mission. Overarching themes of morality, self-sufficiency, and resourcefulness are evident throughout the novel, so we selected *Hoot* expecting the prison would approve it.

Because *WALL-E* is a movie that appeals to a wide range of ages and interests as well as emphasizes critical environmental themes, we watched the beginning portion in our third module. The first thirty minutes has no dialogue and depicts the Earth as a completely lifeless landscape covered in trash. The frequent sandstorms highlight how humans have made the Earth uninhabitable through their excessive consumption. The character of Wall-E (in the form of a robot) has the task of "cleaning up the Earth," sorting through and compacting trash daily. During this beginning portion of the film, he finds a green, growing plant and decides to collect it as it represents the only item of its kind that he has ever seen. By including this film segment, we intended to show the inmates an exaggerated scenario of the impacts that humans can have on the environment, and also that careless actions can have consequences much broader than those immediately visible.

We chose *Green Collar Economy* for the fourth module of our curriculum, which we designed around the topics of renewable energy and green jobs. *Green Collar Economy* reflects a different approach to educating inmates than *Hoot* because of its historical depictions of environmental events combined with a call for activism in the present and future. The book conveys urgency for addressing the environmental condition of our current world while also expressing optimism for improving the American economy at the same time. Within the first chapter, Jones advocates for bringing all social groups to the table, especially those who have been excluded from the benefits of previous environmental and economic improvement initiatives (low-income, minority, and ex-offender groups). Jones's emphasis on ex-offender roles in developing a "green economy" for the American nation reflects the key message we wanted to deliver: that environmental issues are extremely relevant to them and that they can make valuable contributions (largely through connecting with green jobs) to improve the natural world, the economy, and their own lives. We believe that empowering prisoners in this way can capture their interest and lead to "collateral learning," inspiring participants in our program to seek more information about environment topics.

For each module, we gave the inmates additional material through information packets. These packets included supporting articles, figures and data relevant to the class discussion. At the beginning of each visit, we also handed out notecards for the inmates to write down any questions they had that we did not have time to address. In between our visits to the prison, we researched their questions using the Internet. At the beginning of Modules 3 and 4, we handed back our findings to the inmates.

2.1 Module 1 Methods

The first visit consisted of introducing our project, administering the pre-survey (Appendix A), discussing the inmates' connection to and awareness of the environment (Appendix B), and teaching a lesson on climate and air, and then water. For the lesson, we chose to lecture because we wanted to clearly convey information about basic ecological concepts that would help inmates understand more complex environmental issues. At the end of class, we distributed *Hoot* along with guiding questions for the book and collected notecards.

Module 1 Results

After giving an introduction of our project, we learned that the majority of the inmates signed up for the class because they wanted to learn as much as possible while incarcerated. One inmate said he previously took the environment for granted because he figured it would always be there, but now he wants to be part of the solution. Several inmates added that they hear about environmental problems on the news and wanted to learn more and enhance their awareness about "what's going on." Others mentioned that previous to incarceration they held jobs in construction and mechanical work and were curious of the changes being made to these fields because of environmental concerns and perspectives. In this initial discussion, we also found that most of the class was from New York City and New Jersey, and a few of them were from the New York Capital Region.

The comments during discussions indicated that each inmate had his own areas of interest. Most of them voiced concerns about climate change. One seemed to care about health topics, and another inmate was interested in rising sea levels. The inmates brought up current environmental issues such as the Keystone XL pipeline, hydrofracking, and contamination of water by pharmaceuticals, which they know about from intensely following the news. They also criticized capitalism and government, and one inmate claimed, "there have been environmental issues for decades, centuries, but people only change when they have to...we need more regulations." While they expressed their frustrations with the environmental movement, we realized that they did not see their connections to these environmental issues when one inmate said, "What are we really going to do for the environment? We are in prison!" We ended the discussion affirming that we would give them tangible ways to contribute to the environmental movement later on in the program.

The air and climate lecture covered the greenhouse effect, greenhouse gases, climate change, and air pollution. For the water lecture, we discussed the water cycle, the Clean Water Act, existing issues and major concerns of access to water, and where our drinking water comes from. Throughout the lecture, the inmates were paying attention and behaving well; however, they were not actively participating or asking questions. The inmates already knew a lot of the information we were giving them, so we did not spend any extra time on the lectures and moved on. In preparation for the next three lessons we decided to not lecture to the inmates; instead we would engage the inmates with more group work.

In the last five minutes of the class, we introduced *Hoot* and handed out guiding questions (Appendix D). The inmates were excited to receive reading material, but some commented about it being a children's book and complained of having homework.

2.2 Module 2 Methods

We started the second class by handing out an information packet. We then moved to an activity called, "The History of the Earth" (Appendix C). Our discussion of *Hoot* followed (Appendix E). Then, we explored urban sprawl and unsustainable development versus "smart growth." After covering these concepts, we broke the class into smaller groups for a thirty-minute sustainable development role play about a realistic controversial urban development project (Appendix F).

Module 2 Results

For the first activity, the inmates read "History of the Earth" (written by Greenpeace) that applied an extremely abbreviated timescale to the human habitation and abuse of the earth. They wrote down their reactions, and we came together as a group to discuss the purpose of this passage. The inmates were shocked at the amount of damage we have caused in the limited time we have existed on earth. As a class, we concluded that the global population must take serious and urgent action in addressing the environmental destruction humans cause to the earth.

We collected the answers to the guided reading questions we handed out along with the book at the end of the previous class. Without our instruction, nine out of the twenty inmates wrote down answers to the questions as they read the book. The responses were thought out and demonstrated their grasp of the book. One inmate wrote on the bottom of the guiding questions as an additional comment, "This was definitely a great book choice for this class. I hope there are more things like this to come."

Although only about half the inmates read *Hoot*, we still had a detailed discussion about the book. Those inmates who read the book mainly commented that they thoroughly enjoyed reading it. During the discussion, the inmates' comments revealed the themes that appealed to them the most, as well as how the book had impacted them. Some inmates appreciated the characters' rebellious actions, but they recognized the importance of acting realistically to accomplish goals. In reference to the actions of the main character, one inmate said, "if a child can feel this way why can't I? Why has it taken me so long to become aware of these things?" Many of the inmates have experience working in construction, so they initially grappled with the conflict over building. However, after reading, they said the book broadened their thinking and changed their opinions as they learned that the development would endanger owls.

The *Hoot* conversation led us into the topic of urbanization. We talked about the ways smart growth works to alleviate the environmental, socioeconomic, and health concerns of today's large cities through strategic transportation, energy and housing plans. Inmates expressed interest in the ways cities could develop more sustainably than rural areas. They were also

enthusiastic about how public transportation, the consolidation of city services, and housing all in one area could improve life for low-income communities. The class wanted to continue the topic of smart growth, but we ran out of time.

We then began the "Sustainable Development Role Play" activity, which explored the complexities of urban development on a wetland area. The activity was drafted from a current issue in California. One group of inmates personified the role of the development company, and had to advocate for the decimation of wetlands in the name of development, in exchange for conservation elsewhere. This group was convincing in their role; they acted as a progressive development company might act, saying they have consultants for protecting the most ecologically sensitive areas, encouraging the environmentalists to express their concerns, and asserting their commitment to "equality and quality of life." There were two inmates elected as Council Members, who questioned the testifying groups and made the final verdict on the development project. They asked the developing associates about their solutions for flood control, loss of natural beauty, shifting economics, illegal dumping, and water/land contamination. The Council Members took their roles extremely seriously, trying to address all issues involved. Another group personified the environmental activists. They made protest signs: "Save the Wetlands," "Corporations are criminals," "No more building." They also declared that the social benefits of developing the area do not comprise a valid recompense for the destruction of endangered species. A third group of inmates represented the interests of the community members, but their priorities were somewhat divided. One speaker stood for the majority of the group and expressed their approval of the development project for the jobs, housing, and recreation areas that it would create. A single "community member" expressed a differing opinion; he felt that if the wetlands were destroyed, the town would lose its natural flood protection, and he did not see the value in developing the area while increasing its susceptibility to devastating floods. The environmentalists and development associates delivered final statements, and the two Council Members deliberated to make a final decision. Though the majority of the community lobbied pro-development because of job opportunities, the council members ultimately decided that the environmental concerns were not fully addressed by the company and the development would put the city and its natural habitat at risk. This was a very successful activity for our program because it fostered inmate participation and engagement and allowed for small group discussion, collaboration, and critical thinking.

2.3 Module 3 Methods

For the third visit, we started by handing out an information packet on the day's lesson, and we distributed information answering the specific questions inmates had written on notecards during the first two modules. We watched the first thirty minutes of the animated film, *WALL-E.* Watching *WALL-E* allowed us to talk about waste and food issues. We broke up into small groups and had a debate about where New York City's waste should go (Appendix G). In the final portion of the class, we conducted an activity called "Ideal Cities" (Appendix H).

Module 3 Results

The inmates were extremely attentive throughout the screening of *WALL-E*. We asked them their thoughts on the film as well as their reaction to the opening skyline, how technology has damaged life on earth, and how the conglomerate "Buy N' Large" represents today's corporations. They indicated that there was nothing green left on the whole planet; waste issues had become the biggest problem; everything had become overwhelmed with trash; and "there was no life at all." The inmates recognized that "Buy N' Large" had "everything to do with the destruction," and one inmate warned the class "if they [the corporations] win, that is what will happen." Another inmate said that lasting effects of waste on the planet will be unsustainable for future generations and noted, "you know what was crazy though? WALL-E and Eve understand the importance of the preservation of life." They added that they never think about where their waste goes, and many of them voiced concern for today's environmental destruction because of pollution. From watching *WALL-E*, there was general sense among the class that a disconnect exists between humans and the natural environment today.

After *WALL-E*, we transitioned into a debate about the management of New York City's waste. We gave them a scenario of a proposed waste-to-energy facility and had each group argue for or against the incineration plant. At first, the inmates were not receptive to the debate, insisting that it was too similar to the role play. They also felt that the information we had given them was too one sided, making it easier for the Con group to argue against the incineration plant. However, they still all participated in the activity and the two sides made their arguments. The Pros argued that with a recycling plant nothing is lost and that there will be no "WALL-E syndrome" when everything is being recycled. This waste-to energy facility would protect animals, humans and future generations from the impending destruction, seen in *WALL-E*. Lastly, this group questioned what would happen if landfill space ran out. They said we would have to start taking more land away from species and from people. The Cons were concerned about two main things, "health risk to the frontline community and general population, but also the contaminants of this site into water that may travel up the food chain." Most importantly, the Con group argued that everything we do with garbage creates pollution. The waste incineration plant would offer a good short-term solution, but in the long term it would do more harm than help. Overall, the inmates had difficulty finding a fair and unbiased solution to an environmental problem that everyone is inherently responsible for creating.

Next, we distributed a handout with true or false questions as an introduction to the modern food system. All the statements on the list turned out to be true to demonstrate the issues with the large scale at which food is processed and produced. They caught on to what we were doing, but were still very surprised at the extent to which corporations process food. One inmate said he intended to check the packaging of his Oscar Meyer Wieners after he learned that one Oscar Meyer product contained 84 ingredients. We then put the true or false statements in a broader context, asking for inmates' input on why we have so many problems in the food system today and how we can be more environmentally conscious as food consumers.

In the final portion of the class, we gave an activity that incorporated a lot of what we had been teaching into a hands-on project where the inmates designed an ideal sustainable city. "Ideal Cities" allowed the inmates to act as city planners in small groups to design a city that would benefit all its inhabitants and provide the best city environment possible. On a chart, each group devised positive and negative aspects of cities they have lived in and improvements that could be made to these cities. On their final draft, the groups mapped out essential features of their sustainable city such as food markets, waste facilities, recycling plants, parks, ponds and schools. One group even included a bike path. Each group shared their map and the reasoning behind its construction. In preparation for the fourth and final visit, we handed out copies of five selected chapters from *Green Collar Economy* and collected their notecards to address in the last visit.

2.4 Module 4 Methods

At the start of our fourth and final visit, we handed out information packets and then broke up into three groups to discuss *Green Collar Economy*. Each group was responsible for discussing one chapter (either one, three or five) and answering a set of questions that we had prepared for them (Appendix I). We assigned one person in each group to present to the class what their group talked about. These readings were meant to initiate a conversation on green jobs and the training courses accessible to them upon release. The final section of the class was used to inform the inmates about the different types of green jobs available in today's workforce. We handed out an extensive compilation of green jobs, complete with a detailed description and salary for each job. Lastly, we distributed the post-survey, made closing statements and thanked the inmates for their participation and their willingness to treat us as respected educators.

Module 4 Results

We gave each group some time to read through their designated chapter because not everyone had read the book. Then after about fifteen minutes, we instructed the inmates to move on to a discussion with their group. All three groups engaged in a dialogue where the majority of the group members participated and debated with each other. A representative from the Chapter 1 group spoke first. In addressing the problems our country is facing, he said that the government is more reactive than proactive. The other inmates in the first group added that we need the government; they cannot ignore the environment because the environment has a direct impact on the economy. Another inmate emphasized the idea of the home, saying that for progress to happen, everything starts on the grassroots level and then broadens in scale. The representative from the second group (Chapter 3) communicated his frustration about the lack of motivation the public has for addressing environmental issues. He pointed out that America as a nation has addressed issues much more controversial than improving the environment and public health, so he found it frustrating that no, one charismatic individual was stepping up to draw people to the cause. An inmate from another group interjected and stated that we need to challenge the existing social habits of the general public in order to change behaviors ("We are creatures of habit...education is the key"). Towards the end of the activity we were running short on time and had to hasten the last group. We began to discuss training programs and organizations

that the prisoners can work with when they leave prison, and one inmate expressed concern for being able to get hired as an ex-offender. We pointed out that our information packet included descriptions and contact information of several organizations (in New York and New Jersey) whose missions include working specifically with ex-offenders and helping them find jobs in the green workforce. The inmates' appreciative reactions indicated that the information we provided was useful and relevant.

3. Pre- and Post-Survey Results

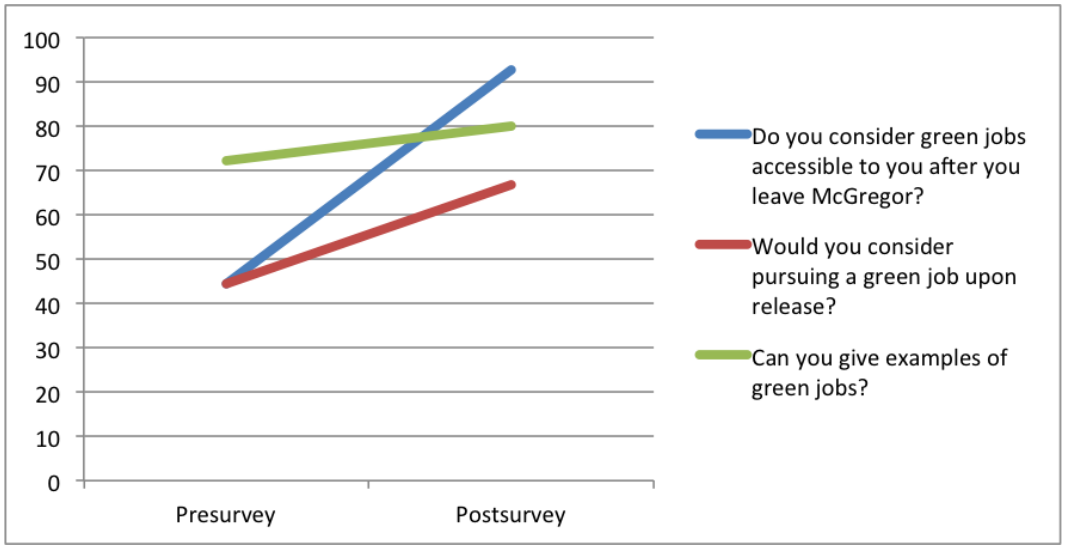

Figure. 1. Percentage of "Yes" responses (questions 1 and 2) and correct examples (question 3) from pre-survey to post-survey.

This graph represents the change in percentage of prisoners responding "Yes" to two questions on our surveys between pre- and post-survey. The third line of the graph (the green line) represents a change in percentage for prisoners writing correct examples of green jobs as opposed to incorrect. Overall, after our environmental education program, prisoners gave a higher percentage of correct answers for examples of green jobs, and a higher percentage of prisoners said that they felt green jobs were accessible to them after release and that they would consider pursuing green jobs than at the start of our program.

By comparing the answers to questions on the pre- and post-survey, we identified the change in inmates perception and understanding of environmental issues and green job opportunities. Five of the open-ended questions gave us a variety of answers and showed their comprehension of the material.

Question 1. *How would you describe a green job?*
In the pre-survey, the general answer was a job that was environmentally friendly, that has to do with our environment, and preserving the environment. On the post-survey their answers grasped what a green job truly is. One prisoner wrote that a green job is the opportunity to contribute to preserving or enhancing environmental quality as well as the opportunity to be provided with a job. Another wrote that a green job is "a part of a working system, in which resources that are taken from the environment is done so naturally and

waste is a source that does not harm the environment or planet." Other inmates showed understanding about solar energy systems, minimizing one's carbon footprint through green jobs, and cutting greenhouse gases through these opportunities.

Question 2. *Can you give some examples of this type of work?*
Answers given in the pre-survey mainly focused on hybrid car development, planting or saving of trees and other plants, and recycling. One inmate who previously worked in construction said that a lot of people working in that field are starting to build green homes that reduce the need for heating fuels or electricity. These were the types of green jobs we were hoping to introduce to the inmates, but we hoped their answers would be more specific and varied by the end. More respondents in the post-survey than the pre-survey listed a variety of correct answers instead of one green job example, and their examples were more developed. The examples focused on in the post-survey included recycling, waste management, as well as solar and wind installation and repair. In the pre-survey, four respondents wrote "no" or gave no response, while only two respondents in the post survey gave no response.

Question 3. *Do you consider these types of employment to be accessible to you after you leave McGregor?*
In the pre-survey, 44% percent of inmates answered affirmatively that they could access a green job upon release from prison. Their understanding of a green job, however, was limited and vague (see above), which may have contributed to their consideration that green jobs would be accessible to them. One inmate wanted to go back to college to earn his "Green Building Management" degree; two said it would depend if they had background skills already, and two said they would need to have more information or learn more about green jobs before pursuing them. In the post-Survey, 80% of inmates said they felt green jobs would be accessible to them upon reentry (only one inmate responded "no" and the indeterminate responses include "i think" and "somewhat"). Three inmates commented in the post survey that green jobs "give ex-cons a second chance" are "entry level" and accept released prisoners as employees. Two respondents in both the pre- and post-survey answers acknowledged the importance of their own personal resolve and dedication.

Question 4. *Would you consider pursuing a green job upon release?*
In the pre-survey, 47% of inmates filling out the survey gave definitively affirmative answers that they would consider pursuing a green job in the future. 21% responded "no" or did not respond, and 32% responded with a variation of "maybe." The uncertain respondents said their pursuing a green job would depend on the salary, the type of work involved, and whether it would be "fun" or "meaningless." In the post-survey, the respondent percentage saying "yes" they would pursue a green job increased to 53%, 20% of respondents answered "no" and 27% answered with a variation of maybe (one of which commented that even if he did not find a green job, he would still do "green things"). Overall, the "yes" answers from the post-survey were more emphatic than the pre-survey, including comments such as "Absolutely, if it will keep me from returning to prison and help the earth why not?!?," "I will contribute to sustaining a green community/planet," "After what I learned in this course, yes!," and "Most definitely now that I know a lot more."

Question 7. *During your time at McGregor, have you become more aware of the conditions in the outdoors (example: change in color of leaves on particular trees, phase of the moon) or less aware? Explain*.
A few of the inmates stated that they felt less aware of the outdoors due to the significant amount of time they spend indoors and their limited ability to see other places. Also, in the winter most windows are covered, further reducing inmates feelings of awareness of nature. However, most of the responses said that inmates were more aware of conditions outdoors because of the McGregor facility and its location. For one inmate, it was his first facility without walls and he appreciated the view of the mountains. The inmates had also noticed the weather, the autumn leaves, the color of plant life and the clean air. In the post-survey, there was an even greater response of inmates feeling more aware of the outdoors. One inmate said, "I'm conscious of the change of seasons by grass growth, chipmunks appearing and disappearing, and birdsongs. I'm in tune with the seasons you might say." Only four of the inmates felt less aware of their environment when asked in the post-survey.

Additional Post-Survey Results:

We added four questions onto the post-survey that were not on the pre-survey to gauge how prisoners viewed and assessed our program (Appendix A). The four questions, and trends in inmate answers, are described below.

1. Did you ever engage in conversation about the topics we discussed in the four environmental lessons outside of class with other inmates? Which topics?
Ten out of fifteen inmates said they discussed the class with other inmates or people outside the prison. Two of them shared materials we gave them with others. Another inmate attested, "In general, every time I come back from class I discuss what I learn and how my perspective changes." Five inmates said they did not discuss our classes with others.

2. What did you enjoy most about this class? Which activity or topic was the most meaningful and relevant to you?
One inmate liked the sustainable development debate activity, one liked the topic of waste management, two liked learning about green jobs, one liked the Ideal City activity, and one liked the topics of water and climate change. Three inmates stated that they enjoyed every aspect about the class- one stated, "The whole class essentially was meaningful to me, every topic we discussed was interesting and taught me something." One inmate appreciated the small group activities because "it forced us to get involved" (the desired effect) and another stated, "[I liked learning] how one person can make a difference."

3. What would you change about the way we conducted the class or the topics we focused on?
Eleven out of fifteen respondents claimed that they would not change anything about our program. One inmate stated that he would change nothing except to add more classes. One suggested that our professor (seated in the classroom for two out of four of our visits but remaining silent) should contribute to the lesson. Another inmate suggested we spend more time discussing how prisoners can involve themselves in the environmental

movement when they are released. One inmate thought the “educators should have a little more control” and one final respondent felt that more details and more time to build on lessons would have been valuable.

4. Would you take another class in environmental studies? Why or why not?
Only one out of the fifteen respondents answered “no” to this question. He evidently interpreted this question as asking whether he would take another class after being released from prison rather than while still in prison, however, and we had hoped to assess interest in taking another course on the environment while in prison (to determine the validity of continuing the program). Some of the most well-developed answers to this question included: “Yes, I want to be a part of the answer and not the problem,” “Yes I would, I think it is important that we become aware of how the things we consider to be small cause tremendous damage to our communities and society as a whole,” and finally, “Yes, being in prison as long as I have (21 years), I feel a need to know more about the world that I am returning to and the role that I need to play as someone responsible to that world.” One inmate answered especially enthusiastically, stating, “Definitely, I’m sure there is more to learn” and included in parentheses “(So when is the advanced class going to start?)”.

4. Discussion

4.1 Answering our Research Questions

The pre- and post-surveys gave us a more tangible way to answer our research questions than relying only on participant observation. We discuss the implications of both research methods for each of the questions below.

Research Question 1: What are the most effective ways to teach prisoners about the environment?

The post survey included the question *What did you enjoy most about this class? Which activity or topic was the most meaningful and relevant to you?*, which we used as a method of determining which activities and topics were most effective from the prisoners’ point of view. Responses to this question varied greatly, and included green jobs (mentioned two times), waste management (one time), water (one) and climate change (one) as favorite topics, and the sustainable development debate as well as the Ideal City activity were each specified once as favorite activities. We created the curriculum with an introductory environmental class in mind because we wanted to include topics to interest everyone, and their answers validated our decision to take this approach.

Even though he mentioned neither a specific topic nor an activity, one inmate answered this question by saying , “how one person can make a difference.” This was a significant response because the value of every person’s efforts is an important theme to include in environmental programs, especially in prisons. We can understand this response to mean that our attempts to inspire rather than discourage inmates were effective (if only on an individual scale).

We also used our own observations to answer this research question, and from our perspective, the sustainable development role play seemed to be the most effective activity. The inmates on the pro- development side told us how hard it was to argue for destroying nature, but each group fully committed to its role and spent a lot of time drafting and defending their positions. The inmates got the most excited during this activity and even after an hour, they did not want to stop trying to persuade each other of their positions.

Research Question 2: Does involving inmates in an environmental literacy program alter their knowledge and perceptions on environmental issues?

As our graph of selected pre-and post- survey responses depicts, inmate knowledge of specific green job examples increased by 8%. Their pre-survey level of knowledge was relatively high to begin with for this question, revealing that the inmates had a general conception of a green job before attending our program. The increased quality and variation of their examples from pre- to post-survey suggests, nonetheless, that learning did take place.

The increase from pre- to post-survey in the number of prisoners saying that they would consider pursuing a green job upon release leads us to conclude that inmates perceptions' have changed. We instructed inmates on the variety of green jobs available and emphasized that many require limited training before applying. This likely influenced prisoners to want to enter into the green workforce more than they did before participating in our program. We also taught issues that were relevant to the inmates' conditions and worthy of their attention and passion, hopefully inspiring them to want to pursue green jobs.

One of the most significant outcomes of our program was the substantial change from pre- to post-survey in the inmates saying they felt that green jobs were attainable to them. Our graph shows that more inmates felt that green jobs were accessible than could identify correct examples of green jobs (Figure 1). We had limited time to discuss different types of green jobs with as much detail as we wanted, but we ended by showing inmates the pages in the information packet that contained descriptions of agencies and organizations that help ex-offenders find green jobs. This likely made entering the green workforce more of a realistic possibility to the inmates, and they had the green job description packet as a reference material to learn about new kinds of green jobs at a later time.

Research Question 3: What are the benefits from an environmental education program?

Inmate responses to the post-survey questions, *Did you ever engage in conversation about the topics we discussed in the four environmental lessons outside of class with other inmates?* and *Would you take another Environmental Studies class?,* allowed us to determine the benefits of our environmental literacy program. Since 67% of the inmates discussed environmental topics outside of class and two inmates even shared the informational materials we provided them with others, we determined that the spread of information was one benefit from our program. We concluded that our program resulted in an increased desire for continued learning, as well as the cultivation of new interests in

participating inmates because 87% of inmates asserted that they would take another environmental studies class.

We also perceived further benefits. First, because we assigned homework, the inmates made productive use of their time in prison by reading and studying the materials we gave them. Second, the inmates learned that they have a very real role in the larger environmental movement. We will never know whether or not inmates take their new knowledge to support the environment and themselves later in life, but through our program we began to equip them with the tools to do so.

4.2 Limitations and the Transformation of the Modules

We faced several barriers in attempting to provide a comprehensive environmental literacy program, teaching in prison has severe limitations. Because we were given minimal information about the inmates, we had difficulty developing our curriculum for all four classes. Therefore, the first module was a huge learning curve for us in regards to figuring out what we needed to change for the remaining program. We were also restricted in the type of materials we could bring into the prison. Each time we went to the prison we had to alert the McGregor staff in advance of what we were bringing to the class, and each time they had to approve these materials. Furthermore, the time constraints of two hours each for four class sessions represented the most significant barrier in implementing an effective environmental literacy program in the prison. Unfortunately, we had to rush through activities at times and frequently cut off discussions in order to cover other material. Discussions are integral for learning, so having more time for inmates to thoroughly develop and share their thoughts would have been more productive. As mentioned in the Results section, the Likert scale data did not produce valid trends. Therefore, we were unable to determine if the inmates' perceptions on the environment changed positively or negatively based on the Likert scale data. We feel that this occurred because of the nature of Likert scale questions, and because of the limited time we had to teach our curriculum (four classes).

We learned that most of the inmates were from New York City and New Jersey in Module 1, so we developed the remaining three modules to address environmental issues affecting more urban areas. We also geared specific information about environmental agencies and organizations to where the inmates are from. We found that by relating the material we were teaching to the inmates' lives, we could help them better understand their relationship to the environment. Another piece of critical information we learned in the first visit was that they all followed the news diligently. This indicated that the inmates have updated information on current environmental issues on a national and international level. However, they consider these issues separate and unconnected to their lives. We adjusted our curriculum to address local environmental issues that the inmates would recognize.

In our first module, the lectures on air, climate and water were (overtly) not well received. The inmates lost interest as we spent thirty minutes speaking at them about information that they already knew. However, using discussion was an effective teaching method. Inmates were willing to speak their minds and took advantage of the opportunity to share thoughts

and ask questions to the entire class, so we continued using this in other modules (discussing *Hoot* in Module 2, *WALL-E* in Module 3, and *Green Collar Economy* in Module 4). We also incorporated more activities that separated inmates into small groups to discuss and formulate arguments, solutions, and compromises for various problems. In Module 2, the class divided into four groups representing different stakeholder roles in a contentious development scenario. The inmates surprised us, indulging in this activity and fully taking on their roles. The council members began the meeting in a very formal way, expressing the purpose of communing for a meeting and their intent on hearing all arguments from each side. Each group spoke firmly on their position, creating a very effective role play on sustainability. This activity succeeded because the inmates worked well in small groups, and it allowed inmates who had previously remained quiet to finally participate.

We decided to continue with similar activities in the remainder of our program. In Module 3, this took the form of a debate. This exercise was a great activity for the inmates in understanding the complications of resolving widespread issues such as waste management. What they thought would be a simple assignment ended up being a difficult task for them in deciding on the best option for the fate of the city's waste-to-energy plant, keeping in mind implications for the residents as well as the surrounding ecosystem. However, because the class felt the activity was too similar to the sustainable development role play, it perhaps would have been more productive to dedicate more time to "Ideal Cities." The "Ideal Cities" activity represented another small group exercise that worked well because the inmates incorporated what they learned in the first three modules as well as their creativity to map their ideal sustainable city. Their drawings showed that they were thinking about issues of sustainability and eco justice. Allotting more time to "Ideal Cities" would have allowed the inmates to further develop and design their drawings.

For Module 4, we instructed the inmates to read sections from *Green Collar Economy.* Because of unknown circumstances (including but not limited to the possibilities that 1) we incompletely communicated our intention for inmates to read and return to class with the materials, or 2) the goals of the assignment remained unclear), only half of the class came prepared to discuss the chapters from the book. This was disappointing because the solutions suggested by Van Jones within the chapters could have answered many of the questions that the inmates had asked since the beginning of the program. We had to take additional time for all inmates to skim through the chapter assigned to their groups, but it eventually evolved into a worthwhile discussion where the inmates began to realize the complexities surrounding environmental issues and understand their roles and involvement in the movement.

We found the inmates engaging, and their enthusiasm and participation reached far past our initial expectations. By learning about the inmates' backgrounds, their understanding of existing environmental issues, and their need for readily-available information about opportunities upon release, we were able to create a curriculum that expanded their existing environmental knowledge and gave them ways to be a part of the larger environmental movement.

4.3 Looking Forward

Reflecting on the entire process of working with Mt. McGregor Correctional Facility, we would change some of the ways that we approached the project. First, when writing our proposal we should have given a more precise description of what we hoped to accomplish. After the prison denied our first proposal, we reached out to Priscilla Frett, a Skidmore student conducting her senior English thesis at McGregor to review the proposal she had written. We read her proposal and made ours more specific (and less ambitious). For the second proposal, we requested four visits, fearing that an overly-eager request would result in a second rejection. In an ideal situation, we would have liked to teach the curriculum over the course of the entire spring semester to mimic an introductory environmental studies class similar to the one we all took at Skidmore College. Since learning is more effective when it is consistent and over a longer period of time, the inmates could have received and processed more material. This would have allowed us to bring in more topics as well as spend more time on each topic, enabling more learning.

As first time teachers we learned a lot about conducting a successful class. On the post-survey, one inmate said that we needed to gain greater control over the class. Therefore, if we were to continue the program we should be firmer in our instruction. It was difficult to discuss the readings when not everyone had completed the assignments. Looking back, we should have addressed the necessity of reading the material before class. Although several of the inmates did not read *Hoot* or *Green Collar Economy*, everyone was excited that we were donating the books to McGregor's library. They talked about how they intended to reread them and have their friends read them too.

Finally, we would have liked to have more experiential activities such as having a garden. If Skidmore students and staff continue to build a strong relationship with the administration, they may be more open to the idea of implementing more hands-on activities in the future. The Sustainable Prisons Project and Roots of Success have strong programs that are developed in multiple correctional facilities. The Sustainable Prisons Project is highly successful at involving the inmates in experiential learning through ecological research, composting, and gardening. Roots of Success has a very rigorous environmental literacy and job readiness curriculum in the classroom. We would like to incorporate aspects of both programs at McGregor. By connecting McGregor with community organizations such as the land conservancy non-profit Wilton Wildlife Preserve, bicycle repair organization Bikeatoga, or certain green job training programs, we could initiate an environmental education program that assists in seed separating, fixing bikes, beekeeping and solar installation. We could further the range of topics and expand the program by bringing in professionals and guest speakers. Ultimately, we want to internalize environmental education within McGregor, either by training prison staff to teach the course or by securing the relationship between Skidmore and McGregor for future educational programs.

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Appendix A
Pre- and Post-survey

How would you describe a green job?
Can you give some examples of this type of work?
Do you consider these types of employment to be accessible to you after you leave McGregor?
Would you consider pursuing a green job upon release?
How would you obtain information about this sort of job?
Under what circumstances are you outside at McGregor?

During your time at McGregor, have you become more aware of the conditions in the outdoors (example: change in color of leaves on particular trees, phase of the moon) or less aware? Explain.

On a scale of strongly disagree to strongly agree, what do you think about the following statements?

The natural environment exists to support humans and their resource needs.

Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree

We have an endless supply of natural resources.

Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree

We should sparingly use natural resources so that they remain for future generations.

Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree

A famous verse in the Book of Genesis (1.28) asserts that mankind shall “have dominion over the fish of the sea, and over the birds of the air, and over every living thing that moves upon the earth.” In this context, do you interpret the word “dominion” to mean “control over” or “responsibility for”? Explain your answer.

On a scale of strongly disagree to strongly agree, what do you think about the following statements?

Climate change is a serious environmental issue facing all of us.

Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree

Humans are responsible for climate change.

Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree

I am concerned about the ways climate change could affect the lives of children in my family.

Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree

I can play a role in reducing human degradation on the environment.

Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree

Additional Post-survey Questions

1) Did you ever engage in conversation about the topics we discussed in the four environmental lessons outside of class with other inmates? What topics?

2) What did you enjoy most about this class? which activity or topic was most meaningful and relevant to you?

3)What would you change about the way we conducted the class or the topics we focused on?

4)Would you take another class in environmental studies? Why or why not?

Appendix B
Initial Discussion Questions

1. What kind of a connection do you personally have with nature? Have you ever thought about a “connection to nature” before? Based on the restrictions of your current living situation, do you feel you have the ability to be connected to nature at all? *Do you go outside at all, do you notice your surroundings when you do, what do you do outside*

2. Everyone has a different connection to nature but we recognize that in the prison environment, you are more or less deprived of a real connection. In what ways does this impact you? Does it impact you?

3. How was nature a part of your lives before you were in prison? Can you recall a memory or a story from a special place in nature that was important to you? This could be in your childhood or adult life.

4. We’re going to bring up and discuss a lot of ways that society harms the environment every day. These are relevant in both urban and rural areas. What are some things that humans do to harm the environment?

5. What do you perceive as the most important environmental issues?

6. Environmental issues are not new to public awareness. In America, the 1970s was the first time that many of these issues were realized and publicized. Improving the environment became a topic for national attention, as the President (primarily President Nixon) enacted laws and regulations for American businesses and citizens to follow. Do you know any ways that we have tried to mitigate human destruction of the environment.

7. What are ways that society can improve the environment when the federal and state governments fail to respond to obvious problems?

8. What does protecting the environment mean to you? Does it mean preserving forests or cleaning water and air? Does it mean using less fossil fuel like oil and coal?

Appendix C
History of The Earth

"Planet Earth is 4.6 billion years old. If we condense this inconceivable time-span into an understandable concept, we can liken the Earth to a person of 46 years of age. Nothing is known about the first seven years of this person's life, and whilst only scattered information exists about the middle span, we know that only at the age of 42 did the Earth begin to flower. Dinosaurs and the great reptiles did not appear until one year ago, when the planet was 45. Mammals arrived only 8 months ago; in the middle of last week man-like apes evolved into ape-like men, and at the weekend the last ice age enveloped the Earth. Modern Man has been around for four hours. During the last hour, Man discovered agriculture. The industrial revolution began a minute ago. During those 60 seconds of biological time, Modern Man has made a rubbish pit of paradise. He has multiplied his numbers to plague proportions, caused the extinction of 500 species of animals, ransacked the planet for fuels and now stands like a brutish infant, gloating over his meteoric rise to ascendancy..." (Greenpeace Ltd.)

Activity: What point is the passage trying to make? What is your reaction?

Appendix D
Hoot Guiding Questions

1. Since he has moved to Florida, what does Roy miss about Montana?

2. Do you think the construction company has the right to build?

3. Why do you think Mullet Fingers feels such a strong motivation to protect the owls?

4. Why does the Mother Paula Corporation want to pretend there are no owls on the vacant lot property?

5. Why do you think the Pancake House's environmental file was missing from City Hall? What kind of critique does this make on the behavior of corporations in regards to the environment?

6. If you were in Roy's history class, would you have been interested in his presentation on the pancake house construction project?

7. Would you have attended the groundbreaking ceremony to protest the company? Why or why not?

8. Do you agree with the construction company's actions?

9. Do you agree with the actions of Mullet Fingers? Or Roy?

10. Why is the riverbed such a special place for Roy?

11. Why do you think Mullet Fingers can catch the fish with his bare hands but Roy cannot?

12. How does Roy change his perception on the Florida environment from the beginning to the end of the novel?

13. How does this novel show that one person can make a difference in their community?

14. Which character (Roy, Dana, Beatrice, Mullet Fingers) do you like the best and why?

Appendix E
Hoot Discussion Questions

How has the story Hoot clarified, confused, or changed your thinking about environmental issues?

From the reading, how would you define “environmental activism?”

Do you agree with the construction company’s actions? Mullet Finger’s? or Roy’s?

Can you think of other ways Roy and Mullet Fingers could have stopped construction of the pancake house, instead of sabotaging Curly’s efforts to move the project along? Do you think these other methods would have been more or less effective than direct action?

How does this novel promote teamwork and collaboration in order to achieve environmental goals?

As a town decision maker, how would you manage the different opinions of the Coconut Cove community?

Have you ever been against a certain type of development due to the removal of the natural environment?

Is there a space you had growing up that was meaningful to you? If you had the chance to stand up for this space, what would you do to protect it?

Now that this land is conserved and no development is allowed to protect the owls, what should the space then be used for? Should people be allowed to access it at all? some? none? regulations?

What are the pros and cons of having 1) an area that is completely developed and completely natural (city) 2) a mix of developed and natural

How does this novel show that one person can make a difference in their community?

Appendix F
Sustainable Development Role Play

Redwood City's Planning Department has undertaken the environmental review process for the proposed Saltworks project on the Cargill property located east of Highway 101 and immediately south of Seaport Boulevard. A project application submitted by DMB Associates outlines development plans for the 1,436-acre property.

According to the application, the proposed Saltworks project, billed as "smart-growth," would develop approximately half of the property with housing, retail and commercial uses, with half dedicated for wetlands, parks, a sports field complex, multi-use open space and waterways. The development would provide homes to 30,000 people. The other half of the site would remain undeveloped. Roughly 440 acres would be converted back to tidal wetlands, and another 250 would become parks, baseball fields and soccer fields. The whole project would take 25 years. The additional housing would also create heavy traffic. Since 1901, Cargill has used the property as industrial salt evaporation ponds to produce salt for roads, food and medicine. The salt ponds actually provide very valuable habitat for migratory birds and other wildlife, even in their current state. In 1990, the U.S. Fish and Wildlife Service designated the bayland as a wildlife haven to be preserved and placed in federal ownership should Cargill be willing to sell and the purchase money available. Healthy wetlands are a vital part of the Bay ecosystem. They provide natural flood control, filter the toxins out of water, protect us from storm surges and sea level rise, and offer great recreational opportunities.

Many environmental groups, like Save the Bay and the Sierra Club, have vehemently opposed the project, arguing that the opportunity for 100 percent wetland restoration is gone once the Saltworks land is developed. David Lewis, executive director of Save the Bay, and other environmentalists say that because the property was once part of the bay's teeming marshes and sloughs, all of it should be restored to habitat for fish, birds and other wildlife. Silicon Valley cities will need more housing, Lewis said. But it should be built close to downtowns, not up against the bay, he said. Environmentalists will work to kill the project at the city council, he said, and have not ruled out lawsuits or placing it on the ballot. Housing advocates contend that there is a large housing dearth and this development of 12,000 housing units could greatly mitigate this problem. City's leaders recognize the importance of this property and the tremendous interest in it and will keep residents informed throughout the review of this development proposal.

Developer DMB Pacific Ventures and environmental group Save the Bay have spent millions of dollars on this project to convey their respective messages.

Appendix G
NYC Waste Debate

New York is thinking about diverting garbage from out-of-state landfills and using it to generate electricity locally. The plan pits concerns about city spending and carbon emissions against fears of environmental injustice.

In the years since a tugboat nosed the last barge full of garbage into the massive Fresh Kills landfill in Staten Island when it was officially closed back in March of 2001, the tax burden and environmental impact of dealing with New York City's trash have increased dramatically. City officials estimate that in a single year, tractor-trailers log 40 million miles to haul 3 million tons of trash from the five boroughs to out-of-state landfills, mostly in Pennsylvania and Virginia. The flat cost of shipping trash to landfills has risen from $62 per ton in 2001 to $92 per ton last year. A recent report by the Citizen's Budget Commission concluded that, "The waste that New York City sends to landfills generates about 679,000 metric tons of greenhouse gases per year – the equivalent of adding more than 133,000 cars to the roads."

To address the growing problem, Mayor Michael Bloomberg included a partial solution in his 30-year master plan for the city, PlaNYC, which calls for the construction of a new Waste-to-Energy (WTE) facility to process trash that cannot be recycled. A Request for Proposals (RFP) was issued in March of 2012 to the private sector to build a facility, "…using reliable, cost-effective, sustainable and environmentally sound waste to clean energy technology." Waste to energy incineration is a method of producing heat and/or electricity by directly combusting garbage or as their official term is Municipal Solid Waste (MSW).

The administration estimates that over 30 years if expanded facilities could accommodate two million tons of trash annually, the city would save about $119 million dollars per year and combined greenhouse gas emissions would be cut by 240,000 metric tons per year. Environmental justice advocates protest, saying the writing on the wall leaned toward a WTE process called thermal processing, which many feel is a fancy code for incineration. The New York Public Interest Research Group reacted to the RFP's announcement by organizing protests and labeling thermal processing as unsafe, unproven and inequitable to communities of color.

The advocates also feel strongly that devoting resources to WTE technology will take away from recycling efforts, where New York lags, ranking 16th out of 27 major U.S. cities in a recent survey. San Francisco, which recycles 77 percent of its household waste, ranked first in the nation, while New York recycled only 15.4 percent in 2011.

Proponents of WTE technology argue that thermal processing is a form of recycling and that new technologies and EPA regulations have eliminated the odor and air pollution many people connect with the process of incinerating trash. Professor Nickolas J. Themelis, director of the Earth Engineering Center at Columbia University, said he thinks that much of the opposition to creating WTE plants in the city stems from people's memories of the bad old days.

Pros about Waste to Energy
Avoided methane emissions from landfills. When a ton of solid waste is delivered to a waste-to-energy facility, the methane that would have been generated if it were sent to a landfill is avoided. While some of this methane could be collected and used to generate electricity, some would not be captured and would be emitted to the atmosphere. Waste-to-energy generates more electrical power per ton of municipal solid waste than any landfill gas-to-energy facility.

Avoided CO2 emissions from fossil fuel combustion. When a megawatt of electricity is generated by a waste-to energy facility, an increase in carbon dioxide emissions that would have been generated by a fossil-fuel fired power plant is avoided.

Avoided CO2 emissions from metals production. Waste-to-energy plants recover more than 700,000 tons of ferrous metals for recycling annually. Recycling metals saves energy and avoids CO2 emissions that would have been emitted if virgin materials were mined and new metals were manufactured, such as steel.

Cons about Waste to Energy
Waste to energy incineration is a method of producing heat and/or electricity by directly combusting garbage or as their official term is Municipal Solid Waste (MSW).
All incinerators pose considerable risks to the health and environment of frontline communities as well as that of the general population. Even the most technologically advanced incinerators release thousands of pollutants that contaminate our air, soil and water. Many of these pollutants enter the food supply and concentrate up through the food chain. Incinerator workers and people living near incinerators are particularly at high risk of exposure to dioxin and other contaminants.

Incinerators burn local jobs. Incinerators require huge capital investment, but they offer relatively few jobs when compared to recycling. In fact, recycling sustains more than 10 times more jobs per tonnage of waste than incineration and landfilling. With a national recycling rate of less than 33%, the U.S. recycling industries currently provide 1.1 million jobs. If the national recycling rate were to double, over a million new, green jobs could be created.

Appendix H
Ideal Cities

Planners seek to organize a city so that it benefits all its inhabitants. They do things such as build housing, construct infrastructure like roads and plumbing, provide public services like electricity and garbage collection, coordinate commerce, provide recreational facilities such as parks, stadiums and museums, and facilitate transport.

These days, planning is not a simple job suited for one department or group. More and more, the cooperation of a number of government departments, local organizations and private citizens is needed to make a city, even a neighborhood, function healthily. Nevertheless, a coherent vision of what is necessary, what is good and what works is needed if cities are going to survive in the future. The students' job is to construct that vision.

Part 1.
On a large sheet of paper (on the computer) create a table with 3 columns. This is your "Planning Table". As a class, list some good things and bad things about where you live and place them in the first two columns, called "Positive" and "Negative". Make sure you discuss why each thing is good or bad. In a third column, called "Improvements", list all the things your town/city lacks or needs, or things with which life could improve

Part 2.
Think of all the necessary infrastructure of a city (not all neighborhoods have them: electricity, transport, roads, buses). Draw another column in your planning table called "Infrastructure" and think of all the examples of infrastructure that your city does not have or needs to improve on

Part 3.
As a fifth column list all the services needed by citizens in order to lead a good life in the city (think of your own life and all the different things you would do during the week and on weekends with family/children). These should include basic needs! (garbage collection, roads, clean water, places to buy food and clothing.

Part 4.
Then pick a site to build your ideal city and be able to explain why you picked this place. Using the planning table draw your Ideal City, everything you think is needed for people to live in a
good, healthy community. Think about where things would be in relation to each other, place things with a purpose.

Appendix I
Green Collar Economy Discussion Questions

Chapter 1: The Dual Crisis

1) Van Jones stated, “It wasn’t Hurricane Katrina that wrought that catastrophe. It was a perfect storm of a different kind: neglect of our national infrastructure combined with runaway global warming and blatant disregard for the poor.” What do you think about this statement? Has anything changed since then? What can we learn from Katrina?

2) Do you think the United States can afford to think about the environment at a time like this, when the basic infrastructure of the economy seems to be in real danger? Can there really be any way for us to think about credit and carbon at the same time?

3) Using your knowledge and experience, how would you go about involving low income communities in the environmental movement? How can people with limited funds contribute meaningfully to the environmental movement?

4) What is your answer to when Van Jones asks, “Is there a way to address both crises simultaneously? Can we help the people without harming the planet? Can we protect the planet, without dooming more people to material poverty?”

Chapter 3: Eco-Equity

Van Jones says, “Until national policy stops rewarding the despoilers and the downsizers, no green enterprise or industry will be able to reach its full potential as a creator of U.S. jobs or a healer of ecosystems.”

1) Do you think we can make any headway towards a green economy without major government initiatives? How can we urge the government to make it a priority?

2) What do you think of Van Jones comparing our current struggle of creating a green economy to beating totalitarianism in WWII, beating economic depression in the 1930s, and overcoming segregation in the US? How can we look to past success to inspire us?

3) Why is it important to have steadfast principles in the eco-equity movement?

4) What are the “unchanging ideals” of the eco-equity movement? How do they work together to ensure the most good for the most people?

5) Van Jones says, “If the crusade to racially integrate the dirty, gray economy represented the height of nobility in the last century, then how morally compelling is the calling to build an inclusive, green economy in this one?”

6) In what ways do you think we can communicate to people the nobility of the eco-equity movement? Why do you think people are not motivated by this “higher calling” already?

Chapter 5: The Future is Now

1) Why are initiatives like the Milwaukee Energy Efficiency program successful?

2) Do you think conserving energy or producing renewable forms of energy are more important?

3) How are wind farms changing life on Native American plantations? Do you think implementing these wind farms is a good idea?

4) What kinds of actors worked together to allow Solar Richmond to be a success?

5) How can urban agriculture have environmental, social, and economic impacts?

6) How can “deconstruction” in place of demolition have environmental, social, and economic impacts?

7) Which essential green economy sector would you most like to work in and why?