

***Examining Transformational Change: Roots of Success
Environmental Literacy and Work Readiness Program in
Carceral Settings***

Final Report – Spring 2021

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Executive Summary

The United States has the highest incarceration rate of any country, with 2.3 million or 698 per 100,000 people currently incarcerated.¹ Research has shown a weak relationship between incarceration and lower crime rates and improved societal outcomes; however, studies have found that prisoners who participated in education and/or vocational programs while incarcerated have lower recidivism rates and better long term outcomes than their non-participating peers.^{2, 3}

This report presents findings from a study that examined the transformational impact of the Roots of Success Environmental Literacy and Work Readiness Program (ROS) in carceral settings. ROS is an empowering environmental education program that connects youth and adults from communities with high rates of poverty and unemployment to environmental careers and post-secondary education through its empowering ten-module curriculum.

Using participant survey data and stakeholder interviews, we explored two main areas: 1) where we see transformational change for ROS program participants and 2) which aspects of the ROS curriculum or model led to those changes. We defined transformational change as a self-reported positive change that occurs in one of five areas of empowerment: Sense of Self, Community Engagement & Activism, Social, Career & Financial Preparedness, and Education. We analyzed survey responses and interview data for indication and type of transformation in each of these areas and explored the drivers of these changes with respect to the model and curriculum.

We found that changes occurred in each area of transformation.

- **Sense of Self:**
 - We saw that both students and instructors emerged from the program with an increased sense of self-esteem and self-efficacy.
 - Instructors in particular felt empowered by their new identity as a teacher.
- **Community Engagement & Activism:**
 - Participants gained an understanding of social and environmental justice and began to shift their perspectives on these issues.
 - Participants started engaging in conservation and justice efforts within the facility.
 - We also found that participants felt more empowered to engage in their communities after release.
- **Social:**
 - We found that participants began to exhibit prosocial behaviors including respect, encouragement, and consideration of others and improved relationships inside and outside the facility.
 - We also found that there was a reduction in violent encounters and violations.
- **Career & Financial Preparedness:**
 - Participants learned about and gained interest in green jobs and acquired the skills and confidence needed to pursue job opportunities.

¹ Sawyer and Wagner, "Mass Incarceration."

² Brown and Rios, "Can a Workplace Credentialing Program Improve Inmate Literacy," 60.

³ Pelletier and Evans, "Beyond Recidivism," 64.

- They also gained an understanding of money management and financial literacy that made reentry easier.
- **Education:**
 - Participants gained skills and knowledge in the topics covered in the curriculum and improved their academic literacy.
 - Participants also became more engaged in their education. Instructors in particular developed a life-long connection to their position as an educator.

There were several specific aspects of the ROS curriculum that drove these changes.

- We found that the **ten modules** contributed to transformational change in all five areas of empowerment, with each module adding to different aspects of that change.
- The **ROS Green Job and Career Pathway Guidebook** gave students knowledge of and inspired their interest in green jobs and improved their self-efficacy and confidence in securing a green job.
- The **environmental focus** of the program provided motivation for participant growth, increased feelings of connectedness with others, and inspired new career pathway opportunities for participants.
- The **accessibility of the curriculum** inspired a passion for environmentalism for participants, helped build classroom relationships, and gave students what they needed to turn their new knowledge into action.

There were also several ROS model aspects that drove these changes.

- **Peer-led instruction** improved classroom power dynamics and opened students to learning content. Instructors in particular gained improved self-esteem, practiced accountability and built trust, and strengthened their communication skills. It also allowed greater program flexibility.
- The way **instructors engaged with students** bolstered self-confidence among participants and improved relationships within the facility.
- The **scripted curriculum** provided students with agency, encouraged reflection among participants, and maximized the accessibility of instruction and professional development opportunities.
- **Certificate granting** increased self-esteem, encouraged students to share their growth with others, and improved career preparedness among students.

We conclude that ROS creates transformational change for students, instructors, DOC staff, and their wider communities across many dimensions and fostered individuals' self-worth, which led to effects both in and outside of correctional facilities.

Overview

Study Motivation

The United States has the highest incarceration rate of any country as 2.3 million people, or 698 people per 100,000 residents, are currently locked up.⁴ Moreover, the disproportionate impact of mass incarceration on low-income communities and communities of color is well documented.⁵ Despite the U.S.'s high rate of incarceration, many studies have questioned its efficacy. A report by the Vera Institute of Justice found a weak relationship between incarceration and lower crime rates, and that the effect decreases as incarceration rates increase.⁶

Multiple studies have found, however, that inmates who receive educational opportunities while in prison have lower recidivism rates.⁷ Moreover, such programs can provide participants confidence, leadership, positive self-image, expanded networks within and outside of prison, which then creates a “positive outcome for the participants and society”.⁸ Still, “while education is a well-accepted need, even requirement, for the prison population,” the prioritization of and funding for such programs remains low.⁹ This study aims to contribute to the field of criminal justice research by exploring how prison education transforms those who are incarcerated and, ultimately, society as a whole.

About Roots of Success

Roots of Success Environmental Literacy and Work Readiness Program (ROS) is an environmental education program that aims to connect youth and adults from communities with high rates of poverty and unemployment to environmental careers and post-secondary education. ROS does this through its empowering curriculum, “Roots of Success,” which founder Dr. Raquel Pinderhughes has developed over the past ten years. The curriculum consists of ten modules: Fundamentals of Environmental Literacy, Water, Waste, Transportation, Energy, Building, Health, Food & Agriculture, Community Organizing & Leadership, Financial Literacy & Social Entrepreneurship, Application & Practice. Additionally, each module contains a “job readiness” activity that prepares students to enter the workforce.

The curriculum is designed to: 1) increase student’s academic literacy and 2) understanding of environmental issues, injustices, problems, and solutions; 3) prepare students for jobs and career pathways in the water, waste, energy, building, transportation, food, health, agriculture, and community organizing sectors of the labor market; and 4) inspire and prepare students to be activists and social entrepreneurs who can improve conditions in their communities.

ROS uses a distinct pedagogical model to accomplish its learning objectives. The pedagogy is structured around the following core tenets:

⁴ Sawyer and Wagner, “Mass Incarceration: The Whole Pie 2020.”

⁵ Ibid.

⁶ Stemen, “The Prison Paradox,” 1-2.

⁷ Brown and Rios, “Can a Workplace Credentialing Program Improve Inmate Literacy,” 60.

⁸ Pelletier and Evans, “Beyond Recidivism,” 64.

⁹ Crayton and Neusteter, “The Current State of Prison Education,” 24-25.

- Defining the environment as where we live, work, play, pray, learn, advocate and organize and including both natural and built environment
- Focusing on understanding environmental problems, injustices, and solutions
- Connecting education to employment
- Believing education should be liberating and inspiring
- Utilizing a multimedia, activity-based approach that engages students
- Encouraging students to build on their existing knowledge and experience
- Preparing students to think critically, address challenges, implement solutions
- Emphasizing teamwork by having students work in small groups throughout the course
- Ensuring that content is relevant and culturally competent
- Teaching to different learning styles and levels of literacy
- Strengthening academic skills
- Developing leadership skills
- Preparing, empowering, and inspiring students to address social and environmental injustice

ROS is taught in prisons, jails, juvenile facilities, job training and reentry programs, schools and youth programs, and in other education and workforce settings. Since 2010, over 25,000 individuals have gone through the ROS program and more than 11,000 have taken the course while incarcerated.¹⁰

Overview of The Study

This report focuses on the transformative impact, or the ability to positively change someone's life, that the ROS program has on incarcerated instructors, incarcerated students, staff in carceral settings, and correctional facilities as institutions.

Over 50 percent of ROS's students are currently or were previously incarcerated, making it the largest program area within ROS. ROS has developed curricula specifically for prisons, jails, and juvenile justice facilities throughout the U.S. Although not intentionally designed to do so, ROS curricula has prepared incarcerated individuals to support facility sustainability initiatives and cost savings, transform facility culture, reduce violence, access a range of employment opportunities after release, and reduce recidivism.¹¹ Moreover, our study does not simply look at the effect on students, but incarcerated instructors and Department of Corrections (DOC) staff as well. Our study aims to learn more about these effects and ROS's role in driving them. To that end, this study analyzed aspects of the ROS curriculum and model to determine the drivers of ROS's transformational change in correctional facilities.

Throughout this report we will reference the ROS curriculum and model, which are distinct parts of the overall ROS program. "Curriculum" refers to ROS course material, i.e. the ten modules, Green Careers & Pathways Book, the overall environmental-focus, and the accessibility of the curriculum. "Model" refers to structural aspects of the ROS program and its implementation in carceral settings. Within that, we examined ROS' peer-to-peer education, how instructors engage with students, the scripted curriculum, and provision of certificates.

¹⁰ Pinderhughes et al, "Roots of Success Ten Year Report," 4.

¹¹ Ibid, 20-21.

Our study used a mixed methods approach that included in-depth stakeholder interviews and qualitative and quantitative survey data.

Research Questions

As described previously, numerous studies have established the positive effects of prison education programs. ROS provides an ideal case study to examine the specific drivers of these changes due to its singular program structure. Not only is it one of few environmental education programs working in carceral settings, ROS is one of a handful of programs that uses a peer-to-peer education model. Additionally, examining ROS's approach to certificate-granting can shed light on an area of criminal justice research that has been inconclusive thus far.¹² Studying ROS and its unique attributes can help isolate the relative importance of drivers of transformative change.

Given this context, our study considered two main questions. First, what is the transformative impact of ROS on students, instructors, and Department of Corrections staff in carceral settings? Second, how do specific aspects of ROS's curriculum and model contribute to those transformative impacts on students, instructors, and staff?

These questions will help pinpoint how ROS creates a transformative impact, what makes ROS unique among other prison education programs, and how ROS's empowering approach could be best applied to other carceral settings.

Methodology

Measuring Transformative Change

To address our research questions, we first conducted a review of existing academic articles on the concepts of transformative learning, development, and education and empowerment. Based on ROS's curriculum and our review of literature, we identified five areas of empowerment as the foundation of our analysis: Sense of Self, Engagement and Activism, Social, Career & Financial Preparedness, and Education. These areas overlap with ROS's main goals of increasing academic literacy and environmental awareness, preparing students for environmental career pathways, and inspiring students to be activists and leaders. Literature also shows the importance of these areas to individual empowerment both in and outside of carceral settings.^{13, 14, 15}

Our definition of transformative change is a self-reported positive change that occurs in any of the five areas of empowerment. Table 1 details our conceptual framework for analysis.

¹² Tyler and Kling, "Prison-Based Education and Re-Entry into the Mainstream Labor Market," 3.

¹³ Mandal, "Concept and Types of Women Empowerment," 20-25.

¹⁴ Vandala, "The Transformative Effect of Correctional Education."

¹⁵ Springfield et al., "Transformation Rubric for Engaged Learning: A Tool and Method for Measuring Life-Changing Experiences."

Table 1: Conceptual Framework for Analysis

Areas of Empowerment	Definition	Sub-Codes
Sense of Self	How participants conceptualize and understand themselves and the world around them.	Self-esteem, Self-efficacy
Community Engagement & Activism	How participants understand and engage with community issues (particularly social and environmental justice), processes, and institutions.	Understanding of Justice Systems, Engagement in Conservation Efforts, Engagement in Society Post-Release, Engagement in Justice Efforts
Social	How participants interact with others and relate to society.	Prosocial Behaviors, Relations inside the Facility, Reductions in Violent Encounters, Relations Outside the Facility
Career & Financial Preparedness	How participants understand and are prepared for different career options and money management.	Employment and Green Jobs, Financial Literacy
Education	How participants value education and skills/knowledge gained through education	Curriculum Knowledge and Skills, Academic Performance, Connections to Education

Source of Change	Sub-Codes
ROS Curriculum	10 Modules (Fundamentals of Environmental Literacy, Water, Waste, Transportation, Energy, Building, Health, Food & Agriculture, Community Organizing & Leadership, Financial Literacy & Social Entrepreneurship, Application & Practice), Green Careers & Pathways Book, Environmental Focus, Accessible Curriculum
ROS Model	Pedagogical Model, Peer-to-Peer Instruction, Certificate

Data & Analysis

Our study used a mixed-methods approach that combined in-depth interviews with qualitative and quantitative survey data. This section outlines our data sources and analytical methodology for each source.

Interview Data

ROS provided the study team with the contact information for twelve interviewees, including six recently released instructors, three DOC staff, and four Roots of Success staff. The

instructors and DOC staff represent different facilities, locations, and gendered programs to ensure variation across these factors.

The research team spoke with these stakeholders to learn about ROS's program structure and impact on participants. Interviews were conducted over the first two weeks of April 2021, via Zoom when possible, and phone otherwise. The research team took notes during the call, which were used in subsequent analysis.

The in-depth interviews lasted 60-90 minutes and followed a structured protocol that varied based on the stakeholder type: ROS Staff, DOC Staff, or ROS Instructor. The interview guides covered similar topics for all participants, with tailored questions that focused on outcomes specific to each group's expertise and involvement (e.g., the DOC protocol contained more questions about facility sustainability and culture, while the instructor guide covered ROS modules in detail.) Full interview protocols are available in Appendix C.

The research team used a content analysis methodology to find common themes across stakeholder interviews and synthesize findings.

Survey Data

ROS provided the study team with a subsample of 802 program evaluation surveys from incarcerated students and 129 from incarcerated instructors from across 26 facilities. The survey gathers information on the knowledge, skills, and behaviors gained through participating in ROS in addition to demographic data, including age, race, and education level.

The survey data includes open and closed-ended responses and letters from 77 incarcerated students who wrote to the founder of Roots of Success, Dr. Raquel Pinderhughes, about their experiences in the program.

Analysis of Quantitative Survey Data

Our analysis of the quantitative components of the student and instructor survey included running descriptive analyses on 24 of the closed-ended student and instructor survey questions that give insight into transformation within our areas of empowerment (see Table 2 below for the survey questions used for each area of empowerment). In addition, we included a summary of student and instructor demographic data¹⁶ (race, gender, age, and education level¹⁷). See Appendix C for descriptive analysis of questions and demographic data.

Examining these data provided an initial overview of the extent to which students and instructors felt that ROS resulted in transformation across our areas of empowerment. The drivers of the transformations were more deeply analyzed through the open-ended survey questions, letters, and interviews.

¹⁶ The subsample of student survey data only included digital survey entries and are not representative of the demographic population served by ROS.

¹⁷ Instructor demographic data only includes a variable for gender.

Table 2: Survey Questions by Area of Empowerment

Areas of Empowerment	Survey Questions
Sense of Self	[There were no survey questions that applied in this area]
Community Engagement & Activism	<p>Student</p> <ul style="list-style-type: none"> ● As a result of taking Roots of Success...(Yes, Somewhat, No) <ul style="list-style-type: none"> ○ [I want to be involved in prison sustainability programs.] ○ [I encourage others to participate in prison sustainability programs.] ○ [I am more motivated to recycle and reduce waste.] ○ [I am more motivated to reduce my energy use.] ○ [I am more motivated to conserve water.]
	<p>Instructor</p> <ul style="list-style-type: none"> ● Please select the circle that describes your reaction to these statements...(Yes, Somewhat, No) <ul style="list-style-type: none"> ○ [Roots of Success helps our facility save money.] ○ [Roots of Success motivates participants to conserve resources.] ○ [Roots of Success helps participants understand environmental issues, problems, and solutions.]
Social	<p>Student</p> <ul style="list-style-type: none"> ● As a result of taking Roots of Success...(Yes, Somewhat, No) <ul style="list-style-type: none"> ○ [The class had a positive impact on my behavior.] ○ [I feel more comfortable working in teams.] ○ [My communication skills have improved.] ○ [The class improved relations within the facility by giving people an opportunity to work together in a positive environment.] ○ [I share what I learned in the class with members of my family.]
	<p>Instructor</p> <ul style="list-style-type: none"> ● Please select the circle that describes your reaction to these statements...(Yes, Somewhat, No) <ul style="list-style-type: none"> ○ [Roots of Success reduces tension and violence among inmates who work together in the classroom] ○ [Roots of Success strengthens participants' public speaking and communication skills.]
Career Preparedness & Financial Literacy	<p>Student</p> <ul style="list-style-type: none"> ● As a result of taking Roots of Success...(Yes, Somewhat, No) <ul style="list-style-type: none"> ○ [I am familiar with jobs and career pathways in the green economy. ○ [I am prepared to respond to questions an employer might ask in a job interview] ○ [I know how to create a budget to manage my personal finances]
	<p>Instructor</p> <ul style="list-style-type: none"> ● Please select the circle that describes your reaction to these statements...(Yes, Somewhat, No) <ul style="list-style-type: none"> ○ [Roots of Success helps participants prepare for the job market.] ○ [Roots of Success helps participants prepare for interviews with employers.]

Education	<p>Student</p> <ul style="list-style-type: none"> ● As a result of taking Roots of Success...(Yes, Somewhat, No) <ul style="list-style-type: none"> ○ [My academic skills have improved.] ○ [I have a better understanding of environmental problems and solutions.] ○ [I would like to continue my education.]
	<p>Instructor</p> <ul style="list-style-type: none"> ● Please select the circle that describes your reaction to these statements...(Yes, Somewhat, No) ● [Roots of Success strengthens participants' academic skills.]

Analysis of Qualitative Survey Data

We used a content analysis methodology to examine the qualitative survey data (open-ended survey responses and letters) and coded for mentions of the areas of empowerment as well as sources of change, to the extent possible. Summary statistics and coding counts for the open-ended survey questions can be found in Appendix E.

Study Limitations

There were some limitations to our study. Based on the timeline of this project, the number of interviews we are able to conduct was limited. While we have quantitative data from the 802 student program evaluations and 129 instructor program evaluations, we only spoke with 12 individuals, six of which were participants themselves. Further, interviews were not anonymous, which could give a positive lean to our results. Participants were asked if Roots of Success could have access to recordings and notes from their interviews and all gave their verbal consent.

The data from the post-course surveys are self-reported, which may skew the results. Finally, only having spoken to interviewees after the program without a pre-program interview as a benchmark for comparison makes it difficult to measure causal change.

The Transformative Impact of Roots of Success

The following sections describe transformational changes observed in students, instructors, and DOC Staff in each of the five areas of empowerment.

Sense of Self

"[Roots] gave me an option to reinvent myself. I don't want to be the person who went to prison again. This experience was cathartic, it helped me to heal, find my identity, and find better relationships in the prison." - ROS Instructor

Sense of Self is defined as how ROS participants conceptualize and understand themselves and the world around them. Across interviews and letters, we found participants increased their self-esteem and self-efficacy as a result of going through the ROS program.¹⁸ For the purposes of this study, self-esteem refers to an individual's confidence in their own abilities and worth. Self-efficacy refers to an individual's confidence in their ability to take action in a given situation.

Self-Esteem

Many interviewees identified low self-worth as the main driver of incarcerated individuals past behavior. As one instructor put it, "Money isn't the root of all evil, poor self-esteem is. You can go into any prison in America and all the guys there, something was wrong with how they viewed themselves." Being incarcerated worsens this poor self-esteem by placing individuals in a dehumanizing environment, where they are "called by a number, live in a cell unit, and have no privacy" as an ROS staff member explained. A Department of Corrections officer also noted this dynamic and the urgency for giving incarcerated people opportunities in the prison, "people that are incarcerated need help to try and pick themselves up and know that they have some self-worth."

Across all interviews, people described how students enter the ROS classroom with a low sense of self-worth and emerge with increased self-esteem. Often, interviewees described this in general terms, such as causing students to "come alive," "hold their heads up," or "stand a little taller." This sentiment is expressed in the post-course letters, where about six percent of students described ROS as "life-" or "outlook-changing". All six instructors interviewed specifically discussed ROS's effect on their personal and their students' self-esteem. For example, one instructor said, "[ROS] helps you find your self-respect and your value. A lot of these women may not have self-respect, but it helped me, and I know it helped them find their self-respect again." This effect is reflected in other studies on carceral education, which have documented that prison education programs foster an intrinsic sense of self-worth among participants.¹⁹

We found that most ROS instructors experience an even greater degree of transformation to their Sense of Self because they gain a new identity as a teacher. An ROS staff member described the

¹⁸ Analysis for this area of empowerment is mostly based on interview data because ROS's post-course survey is not geared towards intrinsic change.

¹⁹ Pelletier and Evans, "Beyond Recidivism," 59.

empowerment instructors experience, “Teaching becomes them, which means their lives are going to change dramatically.” All six instructors we interviewed discussed these dramatic changes to their self-esteem. One instructor called teaching ROS was an opportunity to “feed his soul” and said, “[being an instructor] helped me understand that I was valuable and important and that I could do things, even if I was in prison for the rest of my life. ROS was an integral part of me becoming the man I am today.” Most instructors mentioned the sense of empowerment they got from doing things for others and “giving back” to their peers. Others talked about the sense of meaning and purpose they got from teaching. Our interviews highlighted that being an ROS instructor is not just a job but a “way of life” for these individuals.

Self-Efficacy

Our interviews also indicated that an increase in self-efficacy--an individual’s confidence in their ability to act in a given situation--followed ROS participants’ increased self-esteem.

Interviewees outlined how once students and instructors have a renewed sense of self-worth, they begin to feel a sense of agency over their life and actions. One instructor summed up this process, “going through [Roots] builds their self-importance. They matter, their choices matter.” This aligns with findings of previous research as well; a 2013 study found that prison education programs spur a statistically significant increase in self-efficacy among participants.²⁰

Many interviewees discussed self-efficacy in the context of students feeling empowered to be leaders. Generally, these discussions first asserted that ROS helps students find their voice and second, that students felt empowered to use their voice. One instructor described this process, “[Roots] enabled women to realize that no matter who they are their voice still counts. In addition to being a person of integrity, being a leader and standing up for what you believe in in a big or small way.... They learned to step out of the margin and be at the center of that paper.” Several interviewees contrasted this with the “victim mindset” that many students have when they begin the program. As one instructor said, instead of feeling like they “have to sit back and accept injustice,” students feel prepared to be leaders. The effects of this increased leadership are discussed in the following section on Engagement and Activism.

We saw two key transformations in ROS students’ Sense of Self: improved self-esteem and self-efficacy. Students and instructors described how going through ROS rebuilt their sense of self-worth, which then led to a renewed confidence in their abilities as an individual and leader.

²⁰ Allred et al, “Self-Efficacy: An Important Aspect of Prison-Based Learning,” 225.

Community Engagement & Activism

“Roots says take this knowledge and share it and then everyone will know about it and then it becomes powerful. The world will change if everyone has that knowledge and can use it.”

- ROS Instructor

The Community Engagement and Activism area of empowerment examined how participants understand and engage with community issues, processes, and institutions. We particularly focused on social and environmental justice issues, since they are integral to ROS’s mission. We assessed this area of empowerment through changes in participants’ understanding of justice issues, engagement in their community, and activism in conservation and justice initiatives. We found evidence of increased engagement within correctional facilities and even outside facilities upon students’ reentry. This is reflected in the survey data; **when respondents were asked to list three valuable things they gained from the program, 31 percent of answers centered on engagement and activism.** A few examples include feeling the importance of their involvement in community programs, wanting a green “community” at their facility, and gaining community organizing skills.

Expanded Understanding of Social & Environmental Justice Issues

We found that students, instructors, and DOC staff developed a more nuanced understanding of environmental and justice issues through ROS. In the surveys, about **one-tenth of responses about the most valuable takeaways of the program called out their newfound social and environmental justice knowledge.** Many interviewees described how participants are initially skeptical of ROS due to its environmental focus. For example, one instructor thought ROS was a “tree-hugging thing” at first. An ROS staff member explained why this is the case for many participants: “Lots of people in Oregon, Washington, and Ohio are from logging, rural hunting, and oil family backgrounds. . . so a lot of people--students and staff--are therefore skeptical about environmental issues. Within a very short period of time, that [perception] begins to shift.” The previously mentioned instructor is one example of this dynamic. As he said, “My perception [of ROS] was wrong.”

Across interviews and surveys, individuals described how ROS increased their “awareness” of social and environmental issues. All the instructors we interviewed said their students had little to no knowledge of environmental or social justice before entering the classroom and attributed ROS with improving students’ understanding of those areas. This is reflected in the letters, where students typically framed learning about the harm being done to the environment as “eye-opening” or “surprising.” One DOC staff member described a similar change in her colleagues, “I think [ROS] has made them more aware. They’re looking at things a little differently.”

Beyond participants being more aware of social and environmental problems, some even changed their perspective on such issues. One instructor described the shift in her opinion on poverty, “I thought that people’s positions and their lot in life was often where they chose to be, and now I look at a lot of different factors... I look more at the whole picture. It’s made me more aware of access to health care, language barriers, and things like that.” Another instructor echoed this sentiment and said that ROS “wakes up a social-justice mindset” in students. Research on prison

education programs supports this finding by noting that such programs encourage incarcerated individuals to “critically re-assess social conditions, their pasts, presents and futures, and the opportunities available (and denied) to others in their home communities.”²¹

The next subsections explore how students and instructors put their expanded understanding of social and environmental issues into action.

Engagement in Conservation Efforts

We found environmental behavioral changes to be the most common form of engagement as a result of ROS. **Around 80 percent of students surveyed agreed with each of the three statements: “I am more motivated to conserve water”, “I am more motivated to reduce my energy use”, and “I am more motivated to recycle and reduce waste.”** Additionally, many interviewees reported that participants begin to feel a responsibility to help others and a responsibility to inform others about the environmental issues that they were learning about. One Department of Corrections staff member noted in her interview that guys “go to the bathroom and turn off the faucets. They tell other inmates to turn off the water when they brush their teeth, and they look for resources for their families and how their families can save money on their electric bill.” The impacts of this information-sharing are explored further in the Social section.

Furthermore, all twelve interviewees discussed how ROS changed community engagement within correctional facilities, typically by empowering students to push for operational changes. For example, one student said, “We currently do not have any [environmental initiatives] at our facility but hopefully that will change now that we have completed this class.” DOC staff noticed this uptick in engagement as well. According to one officer, “[ROS] has given AICs [Adults in Custody] more power to recognize that they have some say in things that can happen at the facility.”

Several interviewees gave anecdotal evidence that this increased engagement in conservation initiatives led to cost savings for correctional facilities. For example, one instructor described how ROS students took information about water conservation to their facility’s administration, which then launched an information campaign in both living units and administrative buildings. The facility then saw “drops in water usage.” This aligns with ROS’s Ten Year Report, which found a 60 percent decrease in electrical usage over three years in nine facilities and \$90,000 reduction in annual trash bills in multiple facilities.²² One DOC staff member had not seen cost savings at her facility yet, but thought ROS would eventually change the facilities operations because “[ROS] gets people educated and looking at things differently.”

Engagement in Society Post-Release

Interviewees also talked about how ROS students are more empowered to get involved in their communities upon release. One instructor stated ROS “humanizes [students] and validates them that their opinion matters and they have a right to be involved in their own community.” This is reflected in the paths of several ROS instructors post-release. One instructor is actively working to establish a recycling club at her community college. Two instructors are planning to teach ROS in their own communities, with one instructor having applied for grant funding from the Oregon Healthcare Association to do so.

²¹ Fine et al., “Changing Minds,” 25-26.

²² Pinderhughes et al., “ROS Ten Year,” 20.

Lastly, a few interviewees connected ROS to improving participants' engagement with political institutions. One instructor said, "[ROS] teaches people to vote. It's so important to vote. Those laws and sub-laws are important and make a difference and determine what things get addressed." An ROS staff member echoed this sentiment and described ROS as "a buttress of democracy" because it empowers the vulnerable and marginalized to be informed citizens. This aligns with the literature as well, which has found that prison education programs prepare incarcerated individuals for active citizenship upon release.²³

Engagement in Social and Environmental Justice Efforts

In interviews, participants relayed that they began to engage in social and environmental justice efforts after going through ROS. While in prison, program participants first engaged in justice efforts by sharing their new knowledge. One instructor shared that he was proud of his role in ROS because "ROS was treating the illness [marginalization], not the symptoms [criminality], and I was able to share the same power, growth, and understanding with others." **Additionally, many interviewees described how ROS students identified injustices in their facility and started initiatives to combat them.** This activism took a variety of forms, such as staging a protest to ensure inmates had appropriate PPE while working with marine-grade paint. Several instructors described how ROS "empowered [students] to speak out about these systems."

We additionally saw in our interviews that **once participants are released, many begin to promote justice in their communities.** For example, a former instructor is filing a court case in the State of Washington to give Adults in Custody the "right to darkness," since prisons currently keep lights on 24 hours a day. She attributed ROS with making her "realize that the women in the prison are a marginalized group" and "want[ing] to fight harder for them."

Overall, we found that ROS students are "motivated to be part of the solution," as one survey respondent put it. From encouraging environmental behaviors to organizing both within and outside correctional facilities, ROS students are empowered to push for change. This is a significant finding for prison populations, as studies have shown that inmates are disproportionately from marginalized classes and often feel that "the social deck [is] stacked against them."²⁴ Motivation to be engaged and active in their communities may help incarcerated individuals overcome the significant barriers they face upon reentry.²⁵

²³ Costelloe, "Learning for Liberation, Teaching for Transformation," 35.

²⁴ Fine et al., "Changing Minds," 32.

²⁵ Bushway et al., "Barriers to Reentry."

Social

“Oftentimes in prisons people go off into their little groups, but ROS brought people out of those groups and tied them together. I would see more connections. There was something in common, greater than being in prison. They bonded with people through ROS and that was really important. It broke down the hierarchy.” - ROS Instructor

The social area of empowerment examined how participants interact with others, respond in situations, and relate to society. In this area, we found that through ROS, instructors and students detailed the ways in which the program inspired more prosocial behavior: including respect, appreciation, consideration, and encouragement of those around them. In addition, participants report they developed better relationships inside the facility; they became more connected and communicative with one another, with the Department of Corrections staff, and overall had less tension and violent encounters. They also developed better relationships with family and friends outside of the facility over the course of the program. These findings are supported by literature showing that participants in prison programs report improved relationships, are less likely to have disciplinary incidents, and are perceived as more respectful by correctional staff.^{26 27}

Prosocial Behaviors

We heard consistently from instructors, Department of Corrections staff, and ROS staff that ROS participants became more respectful and considerate of one another. Students and instructors appreciated viewpoints and perspectives from classmates even if they were different from their own. As one instructor put it, “we’d talk about different people’s perspectives based on their life experiences and how they [are] different depending on personal factors. Then, instead of saying ‘this guy is wrong’, they say ‘oh, I can see why he feels that way.’”

Students were also considerate and encouraging towards other students in classes. An illustrative example from an instructor noted “[participants with learning disabilities] aren’t well liked because they annoy the inmates and are hard for staff to work with. . . Some of them get in the class, and then the whole class rallies behind them and helps them keep up.” **Based on student survey data, 95 percent of respondents reported feeling that the class had a positive or somewhat positive impact on their behavior.**

Improved Relationships Inside the Facility

Throughout interviews, instructors and DOC staff said that ROS brought people out of their smaller groups and connected them together. They reported seeing diverse groups hanging out and becoming friends. This is not typical in their facilities, as an instructor stated, “[prisons] are not a place where people have the opportunity to socialize. It’s the opposite. Eye contact is a bad thing...In the institution, people become isolated and lonely and mean, but in this class, it creates an

²⁶ Courtney, “The Relationship Between Prison Education Programs and Misconduct” 44.

²⁷ Pelletier and Evans, “Beyond Recidivism,” 60, 62.

environment where people can do what people are designed to do. They can socialize and build off of one another and discuss and learn from one another and share.”

Instructors and DOC staff felt that students were also more communicative in the classroom than other students in other programs. An instructor shared an encounter he had with an instructor from a different prison program “[He said] ‘every time I come by people are laughing and having fun. . . I have 20 students in my class and they are always asleep.’ [I said] you just have to make it inclusive. . . they need to be a part of the process [and] share their own experiences.” Further, about 98 percent of instructors said Roots of Success strengthens or somewhat strengthens participants’ public speaking and communication skills. In the student survey, 89 percent of respondents felt more comfortable or somewhat more comfortable working in teams and 88 percent felt that their communication skills improved or somewhat improved. **Finally, 94 percent of student respondents reported feeling that the class improved or somewhat improved relations within the facility by giving people an opportunity to work together in a positive environment.**

Both instructors and students had improved relationships with DOC staff. Many DOC staff and instructors noted that before ROS inmates would not talk to DOC staff at all, when asked about the relationship now, a DOC staff person shared that even visitors are amazed by the connection between staff and inmates “as [I] walk down the breezeway, 50 guys will say, ‘hi’ and ask a question. And [visitors] say how polite and nice these inmates are to all the staff.”

Reduction in Violent Encounters

“I have graduated hundreds of students, over 30 classes, and not one incident”
-ROS Instructor

About 96 percent of instructors indicated in the survey that Roots of Success reduces or somewhat reduces tension and violence among inmates who work together. Throughout interviews, we heard from DOC staff and instructors that they saw fewer infractions from students in ROS both in and outside of the classroom. **One DOC staff indicated this even had implications on recidivism; she noted “I’ve never heard of one of them [ROS students] coming back. And there have been a few who stay in touch and they’re doing well.”**

Improved Relationships Outside the Facility

In our interviews, instructors indicated that they felt students had closer relationships with family and friends outside of the facility as a result of ROS. **One instructor shared “[Students] would leave class and pass on suggestions to their friends and family. They’d feel good about sharing information and their family feels good because they’re making progress and doing stuff.” About 90 percent of student survey respondents said that they shared or somewhat shared what they learned in the class with members of my family.** In letters, about 40 percent of students said they planned to, or had already, discussed information gained from Roots with their friends and family. Many students gave specific examples, such as gardening, renovating a family home, and energy cost savings as opportunities to apply information gained from Roots.

Instructors also shared how they themselves reconnected with family and friends. One instructor was able to re-establish a relationship with her child because she was “making better

choices” as a result of ROS, and another was able to reduce his family’s utility bill by sharing information from the curriculum.

Overall, participants became more respectful and considerate towards others and improved their relationships inside and outside of the facility. We also heard that there were reductions in violent encounters and less recidivism among ROS participants.

Career & Financial Preparedness

“A lot of programs you complete them and they drop you off a cliff. With [ROS], it's the opening of a door, career pathways. People are able to get a green job now. They didn't know they were qualified for those things” - ROS Instructor

In this area of empowerment, our data showed that participants gained tangible skills for employment and for finding employment, opened their minds to green jobs, and became confident in pursuing job opportunities. They also became more financially literate. These findings are consistent with existing literature indicating that participants in prison programs who are connected to specific occupations or employment have higher employment rates upon release than those in programs that are only academic.²⁸ Further, studies have shown that many who participated in higher education programs while incarcerated credited those programs with providing them the confidence to pursue employment upon release.²⁹

Employment and Green Jobs

Many ROS participants had not heard about green jobs prior to the program and the introduction to green jobs through Roots of Success expanded their sense of job opportunity. Students started to think about these jobs as potential areas of interest and saw value in these jobs for themselves and for the planet. In a letter, one student shared, “The Roots of Success class showed me I have the chance to have a successful career in a booming green economy and that I could work for something better than just money, I will work for a higher purpose and better future for myself, my son, and the entire world.” **In the student survey, 99 percent of respondents reported that, after the ROS program, they were familiar or somewhat familiar with career pathways in the green economy.**

Students also learned important skills for securing a job or self-employment including resume writing, cover letter writing, interview preparation, developing business plans, and identifying funders. **In the student survey, 97 percent of respondents said they were prepared or somewhat prepared to respond to questions an employer might ask in a job interview. And in the instructor survey, 98 percent of respondents indicated that ROS helps or somewhat helps participants prepare for the job market and for interviews with employers.**

In open-ended student surveys, almost 20 percent of answers regarding the most valuable things students gained from the program centered around career opportunities and financial literacy. In letters, students focused on the role of Roots in improving their career prospects after release. As one student said, “the information and knowledge I've acquired from Roots of Success will provide a vital tool for my success on the outside.” **Around 31 percent of letter writers expressed increased career preparedness in the form of improved interview, resume, and job search skills. Others stated their hope and excitement about finding a job in the green economy—either because of job stability or the moral fulfillment that comes with “green” jobs.** In interviews, instructors, DOC staff, and ROS staff noted that ROS taught students the skills

²⁸ Gordon and Weldon, “The Impact of Career and Technical Education Programs on Adult Offenders,” 202.

²⁹ Pelletier and Evans, “Beyond Recidivism,” 64.

and knowledge they needed for employment which gave them confidence as well. As one instructor shared, “[ROS] prepares them [for employment] absolutely. . . It gives them exposure, and because of that, students aren’t as intimidated to become part of the workforce when they get out.” Further, instructors also shared that they felt more confident entering the job market because of their experience as an instructor.

Research has shown that finding employment is one of the most challenging barriers to reentry for formerly incarcerated people; employers are reluctant to hire these individuals because of their records.³⁰ The career preparedness, knowledge, and enthusiasm that ROS provides is particularly important given the barriers to employment for formerly incarcerated individuals.

Financial Literacy

In addition to difficulty finding work, formerly incarcerated people also face financial burdens to reentry; most individuals have limited finances upon release and rely on family for financial support.³¹ In the student survey, **95 percent of respondents reported that as a result of ROS, they know or somewhat know how to create a budget to manage their personal finances.** Through interviews, we heard across the board that the understanding of money and finances that the program provided was empowering for students. They noted that the financial literacy components of the program made them more thoughtful of how they save and spend, budget, and set financial goals. One instructor shared that students began to “set priority for want versus necessity when purchasing items in the facility.” It also taught them ways to contribute to financial success even while incarcerated. For example, one instructor shared that students learned how to become secondary card holders on a loved one’s account to build credit and make transition to reentry a little bit easier.

Overall, participants gained knowledge of green jobs and were able to see themselves in these roles. They also gained useful skills in money management and became financially literate. These employment and financial transformations are particularly important for incarcerated individuals as they face many barriers in these areas upon reentry into society.

³⁰ Bushway et al., “Barriers to Reentry.”

³¹ Solomon et al., “Life After Lockup: Improving Reentry from Jail to the Community.”

Education

“It helped my family come to terms with the fact that I was in prison--that I got something out of it. You take an education, increased knowledge and awareness, that no one can take away from you.” - ROS Instructor

The Education area of empowerment examines the knowledge and skills that participants gain as part of the program as well as participants' interest and engagement in education. Notably, in the open-ended student survey questions, Education tied with Community Engagement & Activism for the area of empowerment with the most mentions by students in their answers to “What did you like most about the Roots of Success program?”

Gains in Curriculum Skills and Knowledge

There are three main areas where students gain skills and knowledge in ROS classes: environmentalism, social and environmental justice, and job readiness. Since these areas were addressed in previous sections, our Education findings focus on participants' interest and engagement in education. However, the importance of that overlapping transformational growth holds in this empowerment area as well. **We also found that 58 percent of letters described educational empowerment in at least one of these three areas.**

We found that even DOC staff members enjoy what they learn from this program. One DOC staff member shared, “I didn't hear about environmental practices much before this class. Once I got involved in this program, I myself learned a lot. I wish the whole world was learning this stuff. It's not just good for an individual and their money, but the environment.” We also heard of staff trying to listen in behind the scenes and bringing home course materials to their families.

Gains in Academic Performance

Interview respondents reported that ROS increases students' academic performance level, which supports the Ten Year's Report finding that 86 percent of students strengthened their academic skills through this program.³² This is supported by literature showing that workplace readiness programs often lead to grade-level increases for participants.³³ In one interview, a ROS staff member laid out the “wide range of 21st century academic skill sets are introduced and strengthened through the modules” as “reading, writing, math, interpreting tables charts and graphs, critical thinking, problem solving, note-taking, test taking, research, listening, presentation, working with others or independently, and data analysis and collection.” **In interviews, letters, and surveys, we found that participants were particularly grateful for the new vocabulary that they learned as it empowers them in their daily lives and goals.**

Connections to Education

We found that ROS revives some participants' interest in school and learning as well as their confidence in their class engagement. **In the interviews, instructors note how students' class**

³² Pinderhughes et al., “ROS Ten Year,” 3.

³³ Brown and Rios, “Can a Workplace Credentialing Program Improve Inmate Literacy,” 59.

engagement increases throughout the class, and how others in their facility have noted students' high levels of participation in this class. One instructor described the speed at which this change happens as well: "The students would come in from the introduction module, you could see the posture--the students just want to get it done, and by the time they've moved to Water, you see the students aren't slouching anymore. They're leaning in, asking questions, relating it to their lives." Another instructor underscored that students "even sometimes missed football games to come to class. Missing a football game is a big deal in prison." **In the letters, students often wrote of their interest to continue educating themselves, particularly around sustainability matters, and one even asked if the program founder could help advocate for their facility to create more educational programming.** Another assured in their letter that "if [ROS] stretched on longer than ten modules, I'd stick around for as many as I could" and shared, outside of their own learning, "it was inspiring to see classmates learning things they'd never known before."

Instructors are also particularly impacted by this area of transformation as we also see many instructors who adopt teaching as a life-long vocation. As one ROS staff member remarked, ROS "had no idea that when instructors were released (like at Coffee Creek), a lot [would] want to keep teaching, which was never an expected outcome." As an example, one of the recently released instructors that we interviewed is hoping to start a ROS class in her town for reentry folks who either never got the chance to take the class or did not get to finish the class. A study of prison education programs by Emily Pelletier and Douglas Evans supports this finding, as they find that more than encouraging participants to continue their education, such programs "strengthened participant bonds to educational institutions", and participants become inspired to teach their own classes.³⁴

In conclusion, we find that the ROS course creates educational opportunities for students and instructors. Participants see growth in their knowledge and skills in the fields of environmentalism, social and environmental justice, and job readiness, three areas which are vital for successful reentry and societal wellbeing. Moreover, participants' general academic abilities improve, and their enjoyment of learning and connections to educational systems increase, which implies that learning is not only happening now, but likely to continue moving forward.

³⁴ Pelletier and Evans, "Beyond Recidivism," 62.

Drivers of Transformational Change

In addition to exploring the types of transformational change that occurred, we examined the drivers of these changes based on mechanisms mentioned in the interviews, letters, and survey data. These drivers are described in the following two sections, divided by whether they are aspects of the ROS curriculum or the ROS model.

The Curriculum

ROS's curriculum is designed to strengthen students' core academic skills and increase knowledge about environmental problems and solutions, with a focus on social and environmental justice. This section examines how specific aspects of ROS's curriculum created transformational changes for students, instructors, and DOC Staff. We assessed the impact of each individual module, the Roots of Success Green Jobs & Career Pathways Guidebook, the curriculum's environmental focus as a whole, and its accessibility.

The Modules

I. The Fundamentals of Environmental Literacy

The Fundamentals of Environmental Literacy Module serves as an introduction. It helps students think about the interconnectedness between natural systems, biological systems and social systems and the connection between human activity and the environment. The focus is on the economy, natural and built environments, institutions, extraction and use of natural resources, global warming, climate change, bioaccumulation, synergistic effects, how decision makers evaluate environmental issues, understanding cost-benefit analysis, the precautionary principle, how environmental decisions affect communities differently, climate justice, and how people advocate to improve environmental conditions in their community.

The job readiness exercise focuses on understanding career pathways and ladders.
- ROS Ten Year Report

Set expectations for the program

Instructors called this module dynamic, and “while not the most powerful module, it is the most important.” One instructor shared “it breaks down the impact our actions have on the planet and not so much for us but for generations to come. [The material] covered gives you information awareness and captures your attention. [This module is] more [for] education.”

Introduced environmental concepts and set the stage

The module sets the stage for their environmental literacy and eases them into the inclusive pedagogy of the program where they do not need to be afraid to ask questions or be wrong. This set them up to be ready for the coming knowledge in the other modules.

II. Water

The Water Module introduces students to basic concepts and issues relevant to water extraction, management and use, the characteristics of water, how water is used in different settings, the importance of water for humans and other species, the water cycle, water use in agriculture, modern water management approaches, the inequitable distribution of freshwater, ground water extraction, wastewater management, and water contamination.

The job readiness exercise focuses on students identifying their professional strengths and weaknesses and developing a plan for improving professional weaknesses. In addition, students learn about career pathways and entrepreneurial opportunities in the water sector.

- ROS Ten Year Report

Directly and Indirectly Inspired New Water Conservation Behaviors

In the open-ended survey questions, nearly half of responses indicate that they take action to conserve water use as a result of ROS. We heard from instructor interviews that after the water module students would start to conserve water and tell others in the facility to do the same. Others connected with family and friends outside to tell them what they are learning about how to conserve water and save resources.

Precipitated Institution-Level Change

Students began to engage in conservation efforts leading to changes within the facility. One instructor shared an illustrative example of what students did on their own time “At the end of class, we had at least 7-9 men who went to each unit in their pod and in the morning they each had eight-ounce cups and went up to people and measured how much water went down the drain. . . then calculated at the facility level water use. . . It changed their behaviors and they took facts to the administration at the facility.”

Introduction to Career Readiness

Students begin to identify professional strengths and weaknesses, develop plans for improving their weaknesses, and also expanding knowledge on jobs in the water sector.

III. Waste

The Waste Module introduces students to a range of issues related to waste management and resource recovery. Students learn about the waste stream and how it has changed over time, bury and burn strategies, problems that stem from the way institutions and individuals dispose of products and materials at the end of their identified lifecycles, alternative waste management approaches, resource recovery, appropriate technologies, and the 4 Rs.

The job readiness exercise focuses on job search skills and strategies, including identifying and responding to job listings. In addition, students learn about career pathways and entrepreneurial opportunities in the waste recovery sector

- ROS Ten Year Report

Knowledge of and Participation in Waste Reduction

Waste was **the most mentioned module** in open-ended student survey responses, with **about 20 percent of the responses saying they now take action to waste less and 10 percent saying the module was their favorite part of ROS**. Further, when asked to list the three most valuable things they learned from the program, one in four student responses centered on knowledge about waste or waste reduction strategies.

Understanding of Environmental Issues and Engagement in Efforts

In interviews, we heard that this module was integral in shaping students' understanding of environmental problems. One instructor shared, "This module really gets [students] thinking about the planet as a whole. We only have one. We mine, harvest, build, and manufacture. Within a short period of time, so much impact on the earth, turns into waste, that then takes thousands of years to decompose and break back down into something that the Earth can use. So it's just powerful." An ROS staff person shared that some of the films students watch as a part of this module *Garbage Island* and *Stories of Stuff* are also powerful tools in getting students to transform the way they think about environmental issues. Some students created projects to address facility waste. One instructor shared, "We have work crews that go out and put everything in plastic bags, we have lots of jeans and jean jackets, so we decided to make them into reusable trash bags [for the facility]."

Gained Job Search Skills and Saw Value of Waste Sector Jobs

Finally, with this module students began gaining job search skills including how to identify and apply to jobs and gained knowledge on jobs in the waste sector. One instructor noted that some of his students had initially felt it was beneath them to do jobs in this sector, but began to see the value in them through this module.

IV. Transportation

The Transportation Module helps students understand land use planning, the development of transportation systems and infrastructures, diverse transportation modes and transit systems. The module focuses on renewable and nonrenewable resources, the role of fossil fuels in modern transportation systems and vehicles, problems stemming from urban sprawl, greenhouse gas emissions, and air contamination, policies that promote transit-oriented development, alternative fuels, and transportation justice.

The job readiness exercise focuses on resume writing. In addition, students learn about career pathways and entrepreneurial opportunities in the sustainable transportation sector.

- ROS Ten Year Report

Increased Knowledge and Engagement in Environmentalism

Several former instructors mentioned in their interviews how the conservation knowledge and practices in this module have stayed with them. One remarked, “I have a vehicle, but I use public transportation. If I have to go somewhere in a vehicle, like run errands, I try to do it all at once. If I can walk to do errands, I’ll walk.”

Increased Understanding of Social and Environmental Justice Issues

Moreover, one instructor highlighted how this module plays into the larger environmental and social justice awakening of the class:

“It really allows students to sit back and start connecting the dots to how this is connected and created and systemic. That’s the part where students start asking those connectivity questions. This is designed by the people who are so-called ‘in power.’ It wakes up the social justice mindset. How can we start changing this? What can I do as an individual with my connections to change this?”

V. Energy

The Energy Module helps students understand diverse energy sources, the principles of electricity, the role of energy in the world and in our lives, and the economic, political, environmental, and social factors that influence energy decisions. Students are introduced to the characteristics of energy and electricity, basic concepts and issues relevant to energy systems, the role of fossil fuels and nuclear energy in modern electricity systems, greenhouse gasses and their impacts, problems associated with the burning of fossil fuels, approaches and technologies that reduce energy use, renewable energy sources and policies, and climate justice.

The job readiness exercise helps students write a cover letter to an employer. In addition, students learn about career pathways and entrepreneurial opportunities in the sustainable energy sector.

- ROS Ten Year Report

After Waste, this was the most-mentioned module in the open-ended student survey question, “What did you like most about the Roots of Success class?”

Sharing Information with Others

This popularity was likely a large part of why this module was an important driver of social change; according to interviews, students loved sharing this information with others. As one instructor noted, after this module, students “would leave class and pass on suggestions to their friends and family. They’d feel good about sharing information, and their family feels good because they’re making progress and doing stuff.”

Closer Relationships with Family

One instructor also found that the knowledge in this module helped him to contribute to his family while he was incarcerated:

“The energy bill was \$380 a month. We contacted the power company with the knowledge I had of the programs and resources. They gave us a free refrigerator free of charge, and they asked about our washing machine and gave us a free washing machine that was more water-efficient. I had the right terminology when we are talking to people from the power company. We were able to get the bill down to \$180. That’s \$200 saved per month.”

Increased Energy Conservation Efforts

We also see in the student survey that **97 percent of students left this program motivated or somewhat motivated to reduce energy usage**. One instructor noted that one of his “really quiet, younger” students was so excited by the module that he spoke up during the middle of class to ask if they could turn off half of the lights in the classroom right then.

VI. Building

The Building Module introduces students to land use planning, building, and green building concepts. The focus is on built environments, building design and construction, building materials, building systems, embodied energy, indoor air quality, energy and water consumption in buildings, environmental and public health impacts of conventional building practices, green building principles and practices, improving building efficiency, and resource conservation in the construction, operation, and deconstruction of buildings.

The job readiness exercise focuses on preparing for a job interview and mock interviews. In addition, students learn about career pathways and entrepreneurial opportunities in the building sector. The module supports students studying for the Building Performance (BPI) exam.

- ROS Ten Year Report

Improved Relationships Inside the Facility

In interviews, we heard that the building module is where students began to share ideas and life experiences and where long discussions were sparked. One instructor noted, “When you get to the building module, it’s hard to stay focused on the curriculum because now every part of this program begins to rush through everyone’s mind. They get into long, extended conversations connecting everything, sharing, thinking about ideas. People share about their lives and how it connects to them, and it’s powerful.”

Increased Career Preparedness

According to instructors, the knowledge conveyed in this module is particularly relevant to incarcerated students since construction and similarly labor-heavy industries are the labor sectors most open to the formerly incarcerated. Learning about career opportunities as well as how to make their industry more sustainable is therefore an important part of their journey as they build themselves up for long term wellbeing.

Moreover, interviewees noted that many students had never had a job interview before, making the job readiness of this module particularly helpful. Students learn how to respond to interview questions and how to carry themselves in an interview.

Increased Self-Esteem

The knowledge and interview experience of this module gives students exposure and confidence to enter the workforce. Socially, having a mock interview in front of their peers and receiving feedback from them allowed them to become more comfortable with classmates and learn from one another.

VII. Health, Food, and Agriculture

The Health, Food & Agriculture Module focuses on human health, food systems, and agricultural production. Students learn about health, nutrition, local and global food systems, sustainable agricultural practices, industrial agriculture, factory farming, GMO crops, processed and fast food, food deserts, how to increase health and food justice, local food systems, urban agriculture, backyard and community gardening, and health education.

The job readiness exercise has students envision their local food system and think about how new businesses and initiatives could improve health and food access in their communities. In addition, students learn about career pathways and entrepreneurial opportunities in the sustainable food, agriculture, and public health sectors.

- ROS Ten Year Report

Two instructors mentioned Health, Food, and Agriculture as one of the “more powerful” and “eye-opening” modules of the ROS curriculum.

Helped Students Build Healthy Relationships to Food

First, students reassessed their personal relationship with food and the system agricultural system that produces it. As one instructor said, “it’s a powerful module, particularly for those on a fitness journey. They begin to share their thoughts on how America, because of its food system, is now one of the most overweight and under-nutritioned societies.” This instructor also described how the module affected his personal behavior making him think about how he eats and how he can stay healthy.

Connected Students to Agricultural Issues

Beyond behavioral changes, one instructor also discussed how this module shifted students’ understanding of the agricultural system by using a social justice perspective. This occurred when the class learned about factory farms; “[students] don’t know about factory farms. In a lot of ways it looks like prison, and it’s traumatizing to see animals treated like us. A lot of prisoners see that and have the understanding that it’s hard on the animal as well. . . It really causes you to think, but when you get deeper, it opens areas of your mind that you didn’t think about.” An ROS staff member echoed this sentiment and said the Health and Agriculture module “is an empowerment module” because it equips students with the knowledge and language needed to articulate ideas they hadn’t previously encountered.

VIII. Community Organizing and Leadership

The Community Organizing & Leadership Module introduces students to civic engagement, advocacy, community organizing, and leadership approaches, strategies, and skill sets. The module helps students understand the roles and responsibilities of an effective advocate and organizer. Students identify the root causes of problems, build a community based organization, craft a mission statement, identify organizational goals and values, strategize campaigns, and simulate door-to-door campaigns.

The job readiness exercise has students think about career pathways in advocacy, community organizing, and civic engagement.

- ROS Ten Year Report

Interviewees highlighted the Community Organizing & Leadership Module as a pivotal moment for empowering students' sense of self and community engagement. As one ROS staff member put it, "this is the catalytic part."

Expanded Students' Understanding of Power Structures

Many interviewees talked about how this module helps students understand systems of power and their place within those systems, ultimately enabling them to organize for change. As an ROS staff member described, "[it] allows participants to identify, name, and own power relationships. . . They can manage these structures better now that they know them. . . You have a broader understanding and know more specifically what needs to change." One instructor connected this increased understanding of power structures to improved behavior among his students: "[it] helps your behavior too because once you can identify who your enemy is, you can stop flailing, concentrate on your issues and be able to act on what is within your control."

Improved Students' Leadership Skills

Others focused on how the module's content and activities fostered students' leadership abilities. Several instructors pointed to the door-knocking exercise as a key moment for transforming students' self-esteem. As one instructor explained, "We do things like door-knocking [which is about] being able to look someone in the eye and know that you matter. A lot of them used to think 'all I am is a prisoner and I'm going to keep coming back to prison.' It gives them a glimpse at another way to interact in society." Instructors described how once students have this increased self-worth, "they have the mindset of ability to become leaders" and feel a sense of responsibility to share their knowledge with others.

Taught Students to Think Holistically

Lastly, the "Why Activity" came up in many instructor interviews as an important activity that pushed students to "keep digging" until they get to the root cause of a problem. This process encourages students to see the chain of events that lead to an issue, rather than focusing on surface-level solutions. One instructor stated that the activity affected her personally to this day, "I question things more. I'm constantly asking myself 'well, why is it like that?'"

IX. Financial Literacy and Social Entrepreneurship

The Financial Literacy & Social Entrepreneurship Module focuses on personal financial literacy and on basic business practices, skills sets, and green business principles. In the first part of the module, students' focus on their personal finances and learn how to analyze income and expenses, create a budget, set financial goals, deal with debt and predatory lenders, establish savings, and effectively manage their finances. In the second part of the module, students develop green business ideas and business plans, and focus on how to operate a small green business, effective communication skills, business models, basic accounting, target markets, hiring staff, financial reporting, and recruiting advisors

- ROS Ten Year Report

Introduced Students to Money Management and Financial Literacy

In this module, students learned about best practices for budgeting, saving, spending, investing, and raising their credit scores. Instructors noted in their interviews that most individuals come into jail “because they don’t have the tools to manage their finances and they find themselves in situations trying to compensate or add to what they don’t have,” and this module is powerful in helping them understand money.

Prepared Students for Self-employment

Moreover, this module played a role in preparing students for entrepreneurship in teaching them about the different kinds of businesses, how to negotiate, and having them develop their own green business idea and plan. Several interviewees noted that it is not uncommon for incarcerated individuals to want to be self-employed upon release, and as one instructor put it, “it showed them ‘hey, I can own a business.’ A lot of women have great ideas. . . We talked about what that would look like and how it’s really not as scary as it appears.” Another instructor shared that the module helps motivate and instill confidence in students stating “It’s a motivator. ‘I can be someone I can do something.’ People didn’t believe they [had] options; now they have knowledge and language and are able to identify with whatever sector they want to go into... [it] empowers people.”

X. Application and Practice

The Application & Practice Module serves as the conclusion. It provides students with an opportunity to apply the knowledge and skills they have learned in all the other modules to real world situations by envisioning and designing all of the elements of a sustainable, healthy, and just city block.

- ROS Ten Year Report

Instructors described teaching the final ROS module as a bittersweet experience. One instructor used the metaphor of a rollercoaster to explain the feeling:

"You can imagine ROS as a rollercoaster ride. Fundamentals is the takeoff, every other module is a twist and turn and [the Application and Practice] module is coming up after your last drop. You know it's about to be over. You're like, 'Oh, this is good' and you don't want it to come to an end. . . In every class that I've ever taught, there's a somber energy that begins to flow for those reasons."

Connected Students to Other Programs

Despite the somber energy, several instructors used the Applications & Practice module as an opportunity to encourage students to continue learning and engaging both in and outside their facility. One instructor said, "I preach that, just because this class ends for you, it does not mean your class ends. I tell them that everyone who gives you their ear, that's your class, your opportunity."

Instructors also described the importance of this module for community engagement within their correctional facility. Since ROS is a prerequisite for other environmental programs within many prisons, Instructors use the Applications module to encourage students to "be part of this movement in the institution" through other environmental clubs.

Improved Students' Self-esteem

Lastly, one instructor mentioned how the city block activity boosted her students' self-esteem. She organized the final class to be a mock city council meeting, which her facility broadcast over the CCTV. She explained, "For [the students] to have that video taped and shown on the CCTV in the prison and have other inmates see it was really empowering. It was very official and very neat--a real boost for people."

Elements of the Curriculum

Green Jobs & Career Pathways Guidebook

The “Roots of Success Green Jobs & Career Pathways Guidebook” familiarizes students with 100+ jobs and career pathways in the green economy. It was created to provide Roots of Success students and graduates with detailed information on labor market opportunities they can access after graduating from the Roots of Success course. The focus is on meaningful, dignified jobs that provide workers with family supporting wages and occupational mobility over time, most of which do not require a college degree. The Guidebook focuses on employment opportunities in six sectors: Water, Waste, Transportation, Energy, Building, Health, Food, and Agriculture. Each individual job opportunity includes detailed information on the job description, basic qualifications for the job, salary ranges, benefits, career ladders, and growth figures.

- ROS Ten Year report

Gained Knowledge of and Inspired Interest in Green Jobs

The Guidebook was highlighted in several interviews as a tool participants used to learn about jobs in the green sector. It includes detailed information on job descriptions, basic qualifications, salary ranges, benefits, career ladders, and growth figures. One ROS staff member noted that the inclusion of all this information “really gives them a very tangible idea of the job. They get exposure. They may not have known about the job before.” Another ROS staff member shared that even “[DOC staff] bring the green jobs guidebook home to their family and have their kids go into this field.”

Improved Self-efficacy and Confidence in Securing Green Jobs

ROS developed the Guidebook for students who have been left behind by the educational system. Instructors credited the Guidebook with giving students a sense of what they could become after release. Students felt a renewed sense of purpose with the new career interests and paths they learned about in the Guidebook. As one ROS staff noted of the Guidebook, “Many of the jobs in the green collar world are seen as blue collar from a green context. They may have preconceived notions of being in the waste industry. Now they understand context and how they contribute to the community. Reframe the job and how it serves [the] community, and they start seeing the jobs as more appealing.”

Environmental Focus of the ROS Course and Program

“I was on a path to change, and one thing I realized I needed for my change was to align with something that was bigger than me.” - ROS Instructor

In both surveys and interviews, we found the overall environmental focus of the curriculum to be a large driver of change and the foundation for subsequent transformational changes. This finding links with other studies regarding prison education programs. Pelletier and Evans’s paper *Beyond Recidivism* finds that the programs that stood out the most to their study participants were “courses that promoted a great understanding of the human condition” where “participants connected their life experiences to a larger human context.”³⁵

Provided Motivation for Growth

First, the environmental focus gives students the opportunity to be a part of something greater than themselves both in and out of prison. Students can start practicing better sustainability habits while incarcerated and then become activists and organizers in their communities once they are released. Learning about environmental and social justice issues also helps students identify and fight against the systems that oppress them. One student noted in their survey that, “I learned things that I can still help control and change that will benefit the whole planet as well as myself and family.” Additionally, connecting students to something larger than themselves impacts their self-esteem. As one DOC staff member put it, “Helping the environment around them is going to make them feel better.”

Increased Feelings of Connectedness with Others

Socially, realizing that their classmates are oppressed by similar systems and that climate change is a global issue connects participants to others, which is particularly important for incarcerated individuals. One former instructor framed it as, “You can’t care about the earth and not care about a person that lives here. If you can love the place that you live, you can love the person you live with.” Moreover, ROS gave participants something constructive to talk about and share with peers, corrections staff, and their families, which helped bridge divides and frayed relationships. One ROS staff member explained, “They talk to their families about this, help their family find work, and manage their finances.”

Inspired New Career Pathways

Finally, green jobs are a growing field, and it overlaps with industries that many formerly incarcerated individuals often find work in, such as construction. As ROS participants become engaged in environmentalism, turning this passion into a career also makes participants excited about joining the workforce upon reentry. Therefore, environmentalism also serves as a jumping off point for career development.

³⁵ Pelletier and Evans, “Beyond Recidivism,” 56.

Accessible Curriculum

“Not only does it give you all the information, but it tells you how to use it.” - ROS Student

Another way in which the curriculum is designed to support students’ transformational change is that the content is accessible to participants’ backgrounds and is directly applicable to their lives.

Inspired Passion for Environmentalism

We found students engage so deeply in this class because of how they can relate their personal experiences to the course material. One student letter mentioned how learning about waste and obsolescence tied into their experience of being unhoused, where they had to learn “which items would last much longer than others so that I would not need to replace said item frequently.” One ROS staff member explained,

“Lots of incarcerated men and women are very handy. They know how to make do with very little. . . So they can relate to the idea of using rice oil to make an SUV run, alternatives that are more sustainable. They can get it, that you can make more from less, take waste and use it. That’s how they have to live in prison, so the [ROS] message resonates very deeply with them.”

Built Classroom Relationships

The direct applicability to students’ lives also helped bring the students together. While the curriculum is scripted, it remains flexible for instructors to bring in examples tailored to their students, which makes the students “get curious” and “start talking to others about it”, which can then lead to class bonding, as one ROS staff member stated.

Gave Students Ability to Turn Knowledge into Action

Moreover, because of the direct applicability, students leave the classroom knowing how to affect change. In addition to the course ending on an “Application and Practice” module, every module ends with an “Application and Practice” component. The founder explains, “That’s very important to [ROS] purposes, so everything in the prison module is geared to be applied in prisons so that inmates can go to the commissary and start working with their food to make it healthier.” One instructor found this to be an exciting part of the class, sharing, “for me, it develops critical thinking skills. . . seeing what we could come up with to do around the facility, improve the facility we were at.”

Drivers of Change: Elements of the ROS Model

Peer-Led Instruction

"[It's] powerful and it's different and it's why ROS is, in my opinion, one of, if not the most, reformative programs in the institution." - ROS Instructor

A core aspect of the ROS model is that the course is taught by incarcerated individuals to their peers, not a corrections staff member or an outside volunteer. Furthermore, in most institutions, ROS instructors are trusted to teach without the presence of a CO officer in the classroom. This is rare in prisons, and in the interviews, we found it to be a large driver of transformational change for students and instructors. **One DOC officer, after seeing how peer-led instruction works in ROS, said she would like to structure all her other programs around ROS's model.**

Impact on Students

For students, peer-led instruction changes the dynamics of the class experience in a way that encourages greater transformational growth in the areas outlined below.

- **Improved classroom power dynamics, opening students to content**

Many interviews mentioned that prison education programs run by DOC staff and outside volunteers have an inherent power imbalance that makes students feel disconnected from their teacher, and as a result, disconnected from course material. One DOC staff member emphasized "that power dynamic is a very definite differential." Interviewees described how having a peer as an instructor instead fosters trust, vulnerability, and camaraderie, which makes students comfortable sharing their ideas and asking questions. The DOC staff member noted, peer-led instruction "opens up the environment for participants, and by opening up more, there's more growth." Respondents' reflections on the role of peer-led instruction indicates that the messenger of knowledge *matters tremendously* - especially in a hierarchical prison environment.

Impact on Instructors

Peer-led instruction led to further transformational changes for instructors.

- **Increased self-esteem**

Some instructors cited the increase in self-esteem as coming directly from being called a "teacher." As a ROS staff member describes, "Becoming an instructor also gives you a lot of status in a prison. They are professors. That status goes into every part of your life. People come to talk to you as a teacher, talking to you as a teacher. That's an elevated, sacred space."

Moreover, the fact that instructors are paid brings great validation to their work, which bolsters their sense of self-worth. One ROS staff member explained, "it's an empowerment thing. It says, 'This is a real job; you are a real teacher.'" Additionally, one instructor noted that being paid and having that count as a full-time job allowed him to "add the energy and attention [the class] deserves." Otherwise, he may not have been able to provide as strong of a program.

- **Allowed opportunities to practice accountability and build trust**

The increased accountability granted to instructors was also a large point of pride in interviews. One mentioned “I was trusted to go into activity and just be in there. I was able to have scissors and all that, the other inmates saw that. Normally, it is not something that happens.” Another instructor emphasized that the students help with this accountability; the students “never took advantage of the corrections officer not being in the room and respected us as instructors.”

Instructor’s increased accountability also incentivized them to be role models outside the classroom. As one ROS staff member explained, “They also become mentors. They are instructors and role models 24/7. You never can stop. Everything you do is associated with ROS and your students and your previous students, and you are upholding a standard of conduct that’s not just about relations with people but environmental behaviors within your control.”

- **Strengthened Instructors’ Communication Skills**

Through their teaching positions, instructors improve their communication skills, which several interviewees mentioned as important for their professional development. The ROS staff we interviewed emphasized that the training required to become an instructor is elaborate, and that trainees receive focused individual guidance on how to be an effective educator. One instructor mentioned that “the experience instructing and learning and dealing and operating that I had--essentially communicating with people--that’s made me a better communicator on my job, and ultimately it gave me opportunities to move up in my career and be a manager. It opened doors for me.”

Greater Program Flexibility

Finally, one instructor noted that the peer-led model “allowed us to be the only program taught during COVID because no one had to come into the prisons to teach. That makes us very empowering.” One study conducted prior to the pandemic found that even under normal circumstances, peer-led models can compensate for DOC staff shortages.³⁶ This indicates that ROS may be easier to implement at institutions with staff shortages or other resource burdens, unlike other programs that require supervision and staffing. Our finding underscores the need for additional analysis on the institutional effects of peer-led instruction, as we discuss in the subsequent section, Areas for Further Research.

³⁶ Clarke, “Assessing The Rehabilitative Potential Of Science And Sustainability Education In Prisons,” 41-42.

How Instructors Engage with Students

“For men to come into a classroom, especially with a male instructor, talking about love, meeting people where they’re at, working together, no gang affiliations, colors, housing unit divisions. . . that environment is meaningful and transformative for the students to hear and for the instructors to articulate” - ROS Staff Member

In order to teach for ROS, all incarcerated instructors had to go through a multi-day rigorous training. One important component of the training we heard about through interviews was that instructors learned how to engage with students in their classrooms. They are taught that the classroom demands professionalism and integrity and that instructors and students must treat each other as family, with respect and love. In the classroom there are no gang affiliations, colors, or use of nicknames. Instructors inform students that the classroom environment is meant to be meaningful and transformative. Finally, in an ROS classroom, there are no wrong answers.

Bolstered Self-confidence

An ROS staff member shared that the purpose of this teaching style is to ensure that students are met wherever that are at, and to let them know “that’s exactly where you need to be.” Multiple interviewees underscored that no one in a ROS class is ever told they are wrong, which helps students to “see themselves as knowing things.” and increases their self-confidence.

Improved Relations within the Facility

In interviews, instructors noted that because of the way instructors engaged with students, they saw people come together and abandon certain behaviors at the door, even those from rival gangs. As one instructor said, “We talk through it with everyone to make sure everyone is on the same page. . . The method of their learning starts to affect all aspects of their lives - how they interact with others in their tight living spaces.” Further, they noted that students felt heard and excited to learn. One instructor noted the changes he saw in terms of social transformation “Students go over the rules when they first join the class. . . some [DOC staff] notice the difference. ROS students are more respectful.” From DOC staff, we heard that the way instructors engage with students made participants serious about the program and what it represented. They began to hold each other accountable for behaviors not in line with this approach.

The Scripted Curriculum

“It’s an entirely scripted curriculum, so everything you learn is guaranteed.” - ROS Staff

The instructors use a scripted curriculum for all of their classes, which means wherever and whenever a student takes the class, they will be given the same information in the same way. As an ROS staff member explains, this ensures that the skills and knowledge provided through this program are assured for every student.

Provided Students with Agency

A ROS staff member points out that the call and response method used in the script “doesn’t require any knowledge coming in” and “frees up time for discussion and engagement.” Because of that, the scripted curriculum “really allows students to take control of the knowledge and feel ownership over their life.” One instructor expanded upon this concept: “Because the questions are open-ended, [students] feel confident and feel like part of the process. The problem with most guys in prison is that they don’t have self-worth, so going through this builds their self-importance.”

Encouraged Reflection

Furthermore, this open-ended and reflection-based learning system can lead to deeper learning as it “make[s] the content meaningful to each person” and “connects students to things that used to seem very distant from them,” as the first ROS staff member further elucidated.

Maximized Accessibility of Instruction and Professional Development Opportunities

Finally, in addition to the two-plus day training, the scripted curriculum is what enables the peer-led instruction aspect of the ROS model. As an ROS staff member shared, “they can just go through the training, open the script and follow it and magically become teachers. This means they can take people with no teaching or classroom experience, who know nothing about the topic at all, who have never thought about themselves as teachers, who don’t know anything about designing a class or syllabus or lesson plans to pedagogy or anything that’s involved in teaching, and they can elevate them to the level of a teacher.” Another ROS staff member noted, “without the script, you would have to have a degree in environmental science to teach these concepts.” The importance of peer-led instruction is outlined in the next section.

The Certificate

“You can’t tell a person everything that you learn in Roots. A lot of the knowledge that you get is happening in your heartstrings, your thought process, foresight and hindsight and in places that you can’t put words. The certificate becomes a statement to all of that in one piece of paper.” - ROS Instructor

Students receive a certificate upon finishing each Roots of Success module and upon their completion of the entire ROS program. Several instructors specified that ROS’s certificate stands out from similar certificate programs available in prison due to the effort required from students in the classroom. One instructor discussed this difference in detail, “They have a lot of classes in prison that we call a certificate meal. You just have to go and sit there. The one thing that sets Roots apart is when you go in. . . You have to engage, there’s no way to go in there and not learn stuff.” As a result, the ROS certificate is a hard-earned accomplishment compared to other programs. According to another instructor, “Not every certificate is amazing, but ROS’s is.”

Our interviews showed the transformative effects of receiving a certificate for incarcerated individuals. Interviewees typically discussed the impact of ROS’ certificate in three ways: 1) providing a personal sense of accomplishment, 2) sharing progress with others, and 3) aiding in future job searches.

Increased Self-Esteem

As described in the Sense of Self section, many of our interviewees discussed how ROS increased their self-esteem. They often brought this up in the context of ROS’s certificate, which served as a tangible marker of the progress students made through the program. Most interviews mentioned how students get a sense of accomplishment from “finishing” something. As one ROS instructor described, “The certificate is a really great thing. . . It’s tangible. It’s that they completed something—they did something to better themselves. It represents that something good came out of their time in prison.” Several interviewees said that ROS’s certificate is “the most prized possession” for some students because it serves as a marker of this transformation.

Sharing Growth with Others

Interviewees also described the social effects of the certificate since it is a physical representation of students’ progress that they can show to their peers, family, and friends. One instructor worked with DOC staff to allow students to invite a few friends to the ROS graduation ceremony. He described it as an opportunity for students to share their achievement with their peers, and the importance of the certificate in that moment: “[Students] always ask guys to come smoke with them, fight with them, but never do anything good with them. This is a real accomplishment, and it breeds confidence. I wish you could see how impactful it is for them to have the guys there to see what they’re doing.” Another instructor recalled seeing students “really walk up and down the hallway showing people their certificates.”

Improved Career Preparedness

Existing studies that explore the effect of certificate programs on reentry outcomes show mixed results and highlight the need for further research in this area.^{37, 38} We found several anecdotal accounts of how ROS's certificate improves students' career preparedness by demonstrating the abilities of ROS students to employers. The certificate attests to the fact that students are not only environmentally literate upon completion of the ROS program, but responsible potential employees. According to a program partner who works with formerly incarcerated individuals, the certificate confirms that a student completed a program during their time in prison and therefore communicates that they are "reliable and dependable." One instructor mentioned that for students without a high school or college degree, the ROS certificate provides a key opportunity to "professionally present themselves."

³⁷ Hill, Scaggs, and Bales, "Assessing the Statewide Impact of the Specter Vocational Program on Reentry Outcomes."

³⁸ Tyler and Kling. "Prison-Based Education and Re-Entry," 3.

Areas for Further Research

In the course of our study, we identified three areas for further research that could determine the transformative impact of ROS and similar programs.

The Impacts of ROS Aspects Individually

While we were able to connect many of ROS's unique curriculum and model aspects to specific transformational changes, additional research is needed to know the exact effects of each aspect of the curriculum and model on its own. This will help determine whether these individual parts of the ROS curriculum and model can be applied separately to other prison programming and cause the same outcomes.

Prison programs focused on environmental literacy and studies on such programs appear to be almost non-existent.³⁹ We found ROS's environmental focus to be a key part of creating transformational change. Further research into whether other environmentally focused programs have similar impacts would help facilities determine how to best spend their limited resources to rehabilitate incarcerated individuals.

Roots of Success's Pandemic Impact

Lastly, a study comparing ROS's impact during the COVID-19 pandemic to other prison programs would increase our understanding of the effects of the ROS's unique attributes. While our data on ROS during the pandemic was limited, the small highlights we did hear seem to further emphasize the strengths of the ROS model. First, peer-led instruction allowed ROS to continue--and even expand--while most programs ended due to visitation restrictions. Moreover, as an ROS staff member pointed out in her interview, the lockdown caused further isolation as well as increased anxiety levels for all members of society, so the ability of ROS to make participants feel connected to the outside world and more in control of their lives may have been particularly important for participants during COVID. Understanding prison education programs' performance during this time could illuminate ROS's relative ability to operate under difficult situations.

³⁹ Most of the few studies we found as part of our background research were either directly about ROS or Washington state's Sustainability in Prisons Project, of which ROS is a partner.

Conclusion

“Since I left the institution in 2015, I have applied these experiences to every part of my life, professionally to intimate and personal lives. For the first time in life, I’m truly happy. There’s balance and poise everywhere. No part of my life is out of whack due to the fundamental knowledge and experience and sharing and truth of the ROS program.” - ROS Instructor

Our study indicates that ROS creates transformational change for students, instructors, DOC staff, and their wider communities across many dimensions. Moreover, we found that the unique structure of the program meant these transformational changes were possible with minimal resources required from correctional staff.

In **Sense of Self**, both students and instructors left the program with an *increased sense of self-esteem and self-efficacy*. Instructors’ *new identities as teachers* were particularly empowering. We found the Green Jobs and Career Pathway Workbook, environmental focus of the program, peer-led instruction, how instructors engage with students, the scripted curriculum, and the certificates were important drivers of this change in Sense of Self.

In **Community Engagement & Activism**, participants *gained an understanding of social and environmental justice and started engaging in conservation and justice efforts* within the facility. Participants’ *perspectives on these issues changed*, and they felt more *empowered to engage in their communities* after release. We attribute much of this change to the modules on Water, Waste, Community Organizing & Leadership, and Application & Practice as well as the environmental focus of the program.

In **Social**, participants began to *exhibit prosocial behaviors* including respect, encouragement, and consideration of others. There were also many instances of *improved relationships inside and outside the facility and a reduction in violent encounters and violations*. This Social empowerment was largely due to the Waste and Energy modules, environmental focus of the curriculum, peer-led instruction, and how instructors engage with students.

In **Career & Financial Preparedness**, participants *learned about and gained interest in green jobs and acquired the skills and confidence needed to pursue job opportunities*. Their *strengthened understanding of money management and financial literacy* also made reentry easier. The Building and Financial Literacy & Social Entrepreneurship modules, Green Jobs & Career Pathway Workbook, peer-led instruction, and the certificates were particularly strong drivers of this transformative change.

In **Education**, participants *gained skills and knowledge* in the topics covered in the curriculum and improved their academic literacy. They also became *more engaged in their education*. Instructors in particular developed a *life-long connection to their position as an educator*. All of the modules, but particularly the Fundamentals of Environmental Literacy module, and peer-led instruction were responsible for the growth we saw in the Education area of empowerment.

Ultimately, we found ROS is empowering incarcerated individuals to transform their lives and transform their correctional facilities, communities, and society into more just and sustainable systems.

Appendices

Appendix A. Literature Cited

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Appendix B: Interview Protocols

B1: ROS Instructor Interview Protocol

Introduction and Confidentiality Statement

Hello, thanks for taking the time to meet today! My name is (*name of interviewer*), and I am a student at the University of California, Berkeley. My team and I want to hear from people who have been involved with the Roots of Success Environmental Literacy and Work Readiness Program in order to understand the transformative impact the program has on instructors. This conversation should last about an hour. I would love to hear as many concrete examples/stories as you can as you answer the questions.

We would like to record this meeting and share a copy with the Roots of Success team. Is that alright with you? Do you have any questions before we begin?

General

1. Background information
 - a. How did you get involved in the program? How long were you a part of the program?
 - b. Which institution were you a part of?
 - c. Which modules did you teach?
 - d. How many students did you teach?
2. Tell me about your experience in ROS broadly.

Specific Module Questions

I'd love to learn more about the curriculum and the impact it had on you and your students. Let's go through each of the modules and discuss them.

First let's discuss **Fundamentals of Environmental Literacy**.

1. How did students respond to this module?
2. Had many students encountered environmental literacy previously?

Now let's talk about [NAME OF NEXT MODULE]

For each subsequent module, interviewer will walk through the questions below:

- **Water, Waste, Transportation, Energy, Building, Community Organizing and Leadership, Financial Literacy and Social Entrepreneurship**

3. How did participating in this module impact your students? (Probe on values, specific reflections, behaviors).
4. How, if at all, did your students change behaviors when it came to [NAME OF MODULE]?
5. How did teaching this module impact you? (Probe on values, specific reflections, behaviors).
6. How, if at all, did you start to think differently about [NAME OF MODULE]?
7. What, if any, skills or knowledge from this module do you now use in your everyday life after release?
8. What do you think is special about this module that makes it relevant to students?

Broad Curriculum Questions

9. What modules, if any, stuck with you the most? Why do you think that is?
10. Which modules stuck with your students the most? Why do you think that is?
11. How, if at all, did your behavior change as a result of instructing the program?
12. How, if at all, did your students' behavior change as a result of the program as a whole?
 - a. Probe: violence reduction, relationship with COs, participating in other programs, participating in environmental/social justice groups
13. What do you think about the certificate granting? What impact does that have on your students? If they hadn't earned a certificate, how would that have changed the way they view the program, if at all?

Model / Program Structure

Now, I'd like to discuss a little about the way the program was structured.

14. How did being a ROS instructor affect you?
15. Were you paid? - If yes, how did that impact you?
 - a. If no, why did you volunteer to be an Instructor?
 - b. If you were paid, how would that change the way you did your job, if at all?
16. Did you take a pay cut from another job in the prison to be an ROS Instructor? If so why?
17. What about other aspects of the program - for instance, tell me about the fact that you were able to teach in a room without the presence of a correctional officer. How did that impact your instruction?
 - a. *Potential follow up:* How did it feel to be trusted to be in a room without a correctional officer?
18. How do you think is ROS different from other programs working in the incarceration space, if at all?
19. Which aspects of the model were most impactful to you? In what ways? Which do you think were impactful to other instructors?
20. What, if anything, would you change about the instructor model?
21. What does it mean to be an ROS instructor for life? How have you carried that forward in your life after being released?
22. Did participating in ROS affect your resentencing or clemency hearing? If yes, how?
 - a. Did Dr. Pinderhughes' letter and/or involvement impact your hearing?

Community Engagement and Social/Environmental Justice

23. What were your thoughts on environmental justice before joining ROS?
24. Have your thoughts on environmental justice changed at all after being a part of ROS?
25. What were your thoughts on social justice before joining ROS?
26. Have your thoughts on social justice changed at all after being a part of ROS?
27. Have you been involved in social justice or environmental work (prison abolition work, environmental conservation, etc.) since finishing ROS? What role, if any, did ROS have in your participation?
28. How do you think about responsibility to your community, particularly around environmental issues?
29. Did you see any changes in community engagement or activism at your facility as a result of this program?
 - a. Probe: cost savings in water, energy, waste reduction, etc.

Relationships

30. In what ways, if any, did your participation in ROS impact your relationships with others inside? How about now that you are out?
31. In what ways, if any, did your students' participation in ROS impact their relationships with others inside?
32. How, if at all, did ROS, affect the ways in which staff and students interacted?

Career Preparedness

33. How, if at all, did ROS change your career goals/interests?
34. How, if at all, do you think ROS has prepared you for employment?
 - a. *Potential follow up:* How, if at all, has ROS prepared you for job interviews or the workplace?
35. How, if at all, did ROS change the way you think about "green jobs"?

Sense of Self

36. How, if at all, did participating in ROS change the way you look at yourself?
37. In your opinion, how, if at all, did participating in ROS change the way your students looked at themselves?
 - a. *Potential follow up:* [Tell me more about the effect _____ (learning x, being paid, getting a certificate) had on you/your students.]

Closing

38. Is there anything else you would like to mention about ROS' impact before we end the interview?

B2: Department of Corrections Interview Protocol

Introduction and Confidentiality Statement

Hello, thanks for taking the time to meet today. My name is (*name of interviewer*), I am a student at the University of California, Berkeley. My team and I want to hear from people who have been involved with the Roots of Success Environmental Literacy and Work Readiness Program in order to understand the transformative impact the program has on staff in carceral settings, and on prison/jail facilities as institutions. This conversation should last about an hour. I would love to hear as many concrete examples/stories as you can as you answer the questions.

We would like to record this meeting and share a copy with the Roots of Success team. Is that alright with you? Do you have any questions or concerns before we begin?

Basics

1. Please describe your role with ROS. How long have you been involved and in what capacity?
2. Can you tell us about how ROS works in your [facility]?
3. How/Why did your [facility] start using ROS?
4. Does your [facility] offer similar programs to inmates?
5. How is ROS different from other programs that your facility offers or that you've heard about being offered elsewhere, if at all?
 - a. Probe: Is ROS available to those in isolation? Are other programs available to people in isolation?
 - b. Probe: payment of instructors, allowing instructors in room without CO (correctional officer).

Impacts of ROS

1. How, if at all, has ROS impacted your [facility]?
 - a. Did your facility have green initiatives before introducing ROS? If so, how has the program interacted with those initiatives?
 - b. What, if any, impact does ROS have on the culture of your institution?
 - c. How if at all, has the sustainability of your facility changed as a result of the program?
 - d. What have you seen with respect to cost savings?
 - i. Probe: water, energy, waste/composting
 - e. How, if at all, have relationships between inmates and staff at your facility changed as a result of the program?
 - i. Do you see any differences with respect to infractions or behavior violations? How about releases? How about participation in other programs?
2. What is your sense of ROS's impact on inmates after they are released?
3. How about ROS instructors? How have you seen ROS impact them, if at all?
4. How, if at all, has the ROS program impacted your experience on the job?
 - a. How, if at all, has your relationship to your job changed as a result of the program?
 - b. How do you think it's affected other staff, if at all?

Additional

1. Would you recommend ROS to other facilities? Why or why not?

Conclusion

1. Anything else you'd like to add?

Thank you again for your time!

B3: Roots of Success Staff Interview Protocol

Introduction and Confidentiality Statement

Hello, thanks for taking the time to meet today! My name is (*name of interviewer*), and I am a student at the University of California, Berkeley. My team and I want to hear from people who have been involved with the Roots of Success Environmental Literacy and Work Readiness Program in order to understand the transformative impact the program has on staff. This conversation should last about an hour. I would love to hear as many concrete examples/stories as you can as you answer the questions.

We would like to record this meeting and share a copy with the Roots of Success team. Is that alright with you? Do you have any questions before we begin?

General

1. Background information
 - a. What is your role at ROS?
 - b. How did you first get involved here?
 - c. How long have you been with ROS?
2. Tell me about your experience in ROS broadly.

Module Questions

I'd love to learn more about the curriculum and the impact it had on participants. Modules include Fundamentals of Environmental Literacy, Water, Waste, Transportation, Energy, Building, Community Organizing and Leadership, Financial Literacy and Social Entrepreneurship.

1. How do you think the modules impacted students and instructors? (Probe on values, specific reflections, behaviors).
2. How did teaching this module impact instructors? (Probe on values, specific reflections, behaviors).
3. How, if at all, did students and instructors start to think differently about these topics?

Broad Curriculum Questions

4. What modules, if any, are the most important in the curriculum? Why do you think that is?
5. Which modules do you think stuck with students and instructors the most? Why do you think that is?
6. How, if at all, did students' and instructors' behavior change as a result of the program as a whole?
 - a. Probe: violence reduction, relationship with COs
7. What do you think about the certificate granting? What impact does that have on students? If they hadn't earned a certificate, how do you think that would have changed the way they view the program, if at all?

Model / Program Structure

Now, I'd like to discuss a little about the way the program was structured.

8. How do you think is ROS different from other programs working in the incarceration space, if at all?
9. Do you think being paid affects instructors? If so, how?
10. What about other aspects of the program - for instance, enabling instructors to teach in a room without the presence of a correctional officer (CO). How does that impact instruction?
11. Which aspects of the model are most impactful to students and instructors? In what ways?
12. What, if anything, would you change about the way things are run?

Community Engagement and Social/Environmental Justice

13. Do you think students' and instructors' thoughts on environmental justice changed at all after being a part of ROS?
14. Do you think students' and instructors' thoughts on social justice changed at all after being a part of ROS?
15. How do you think ROS changes what students and instructors see their responsibility to their communities, particularly around environmental issues?

16. Have you seen any changes in community engagement or activism at participating facilities as a result of ROS?
 - a. Probe: cost savings in water, energy, waste reduction, etc.

Relationships

17. In what ways, if any, did participation in ROS impact student and instructor relationships with others inside or outside the facility?
18. How, if at all, did ROS, affect the ways in which staff and participants interacted?

Career Preparedness

19. How, if at all, does ROS prepare instructors and students for employment?
 - a. Potential follow up: How, if at all, has ROS prepared participants for job interviews/the workplace?
20. How, if at all, do you think ROS changes participants' career goals/interests?
21. How, if at all, do you think ROS changes the way participants think about "green jobs"?

Sense of Self

22. In your opinion, how, if at all, did participating in ROS change the way students and instructors looked at themselves?
 - a. *Potential follow up: [Tell me more about the effect _____ (learning x, being paid, getting a certificate) had on participants.]*

Closing

23. Is there anything else you would like to share about ROS' impact before we end the interview?

Thank you very much for your time.

Appendix C: Survey Summary Statistics
C1: Quantitative Survey Data Descriptive Output

Table 1. Race/Ethnicity of Student Program Evaluation Survey Respondents

Race or ethnicity	Percent
White	53.60%
Black or African American	21.36%
Latino/Hispanic of any race	12.45%
Two or More Races	7.34%
American Indian	2.62%
Asian/Pacific Islander	2.62%

Source: *Roots of Success Student Program Evaluation Survey*.

Note: Race categories exclude persons of Hispanic ethnicity. N = 763 (39 missing responses).

Table 2. Age of Student Program Evaluation Survey Respondents

Age	Percent
14 to 18	0%
19 to 24	6.86%
25 to 35	30.67%
36 to 55	52.49%
Over 55	9.73%

Source: *Roots of Success Student Program Evaluation Survey*.

Note: N = 802 (0 missing responses).

Table 3. Education Levels of Student Program Evaluation Survey Respondents

Age	Percent
No GED/No High School Diploma	9.60%
GED/High School Diploma	43.14%
Some College	35.66%
Completed College	11.60%

Source: *Roots of Success Student Program Evaluation Survey*.

Note: N = 802 (0 missing responses).

Table 4. Summary of Student post-survey responses.

Area of Empowerment	Student Survey Questions	Yes	Somewhat	No
Community Engagement & Activism	I want to be involved in prison sustainability programs	70%	23%	7%
	I encourage others to participate in prison sustainability programs	67%	25%	7%
	I am more motivated to conserve water	78%	18%	4%
	I am more motivated to reduce my energy use	81%	17%	3%
	I am more motivated to recycle and reduce waste	82%	16%	2%
Social	The class had a positive impact on my behavior	72%	23%	5%
	I feel more comfortable working in teams.	48%	41%	11%
	My communication skills have improved.	50%	38%	12%
	The class improved relations within the facility by giving people an opportunity to work together in a positive environment.	68%	25%	6%
	I share what I learned in the class with members of my family.	66%	23%	10%
Career & Financial Preparedness	I am familiar with jobs and career pathways in the green economy.	71%	28%	1%
	I am prepared to respond to questions an employer might ask in a job interview	76%	20%	3%
Education	My academic skills have improved	51%	38%	12%
	I have a better understanding of environmental problems and solutions.	87%	11%	2%
	I would like to continue my education.	86%	12%	2%

Source: *Roots of Success Student Program Evaluation Survey*.

Note: N = 802 (0 missing responses).

Table 5. Summary of Instructor post-survey responses.

Area of Empowerment	Instructor Survey Questions	Yes	Somewhat	No
Community Engagement & Activism	Roots of Success helps our facility save money.	41%	36%	23%
	Roots of Success motivates participants to conserve resources.	87%	13%	1%
	Roots of Success helps participants understand environmental issues, problems, and solutions.	98%	2%	0%
Social	Roots of Success strengthens participants' public speaking and communication skills	62%	36%	2%
	Roots of Success reduces tension and violence among inmates who work together	70%	26%	4%
Career & Financial Preparedness	Roots of Success helps participants prepare for the job market	62%	37%	2%
	Roots of Success helps participants prepare for interviews with employers	72%	25%	2%
Education	Roots of Success strengthens participants' academic skills	71%	28%	1%

Source: *Roots of Success Student Program Evaluation Survey*.

Note: N = 126 (3 missing responses).

C2: Qualitative Survey Data Summary Statistics

The Qualitative Data

Fifty-nine students who took the survey also wrote letters, and their open-ended responses and letters were coded. The respondents represented 12 different institutions and were very similar in age from the overall surveyed student group. These respondents were more likely to have not received their GED or high school diploma (17.24 percent), but otherwise were 3-5 percent points within the same education level as the overall group. The racial composition of this group was a little different from the overall group, as outlined below. On the whole, this group is representative of the larger group of students.

Race or ethnicity	Percent
White	43.64%
Black or African American	10.91%
Latino/Hispanic of any race	36.36%
Two or More Races	3.64%
American Indian	5.45%
Asian/Pacific Islander	2.62%

Note: Race categories exclude persons of Hispanic ethnicity. N = 58 (1 missing responses).

Overall Findings

The open-ended questions that were coded across the five areas of empowerment included:

- List three valuable things you gained from the Roots of Success class.
- Describe how [the Roots of Success class changed how you use water, waste, and energy].
- What did you like most about the Roots of Success program?

The frequencies of the counts are listed below.

Area of Empowerment	Mean	St. Dev.	Count of Participants that Mentioned	Percentage of Participants that Mentioned	Maximum per person
Sense of Self	.338	.633	15	25.4%	2
Community Engagement & Activism	1.678	1.676	37	62.7%	5
Social	.203	.484	10	16.9%	2
Career & Financial Preparedness	.610	.743	28	47.5%	3
Education	1.254	1.076	32	54.2%	4

There were almost no statistically significant differences in reported transformative change in these areas of empowerment across race, gender, or education level, except that those with a college degree generally marked transformative change in social and environmental justice .973 points higher than those with no GED or high school diploma.

Most Valuable Things Gained

In coding the question “List three valuable things you gained from the Roots of Success class” we coded across the areas of empowerment if mentioned as well as specific aspects of the curriculum or model if mentioned. Some participants answered more or less than three traits, and all were counted. If there was overlap in answer, both areas and/or aspects were marked, and if an area or aspect was repeated within a person’s three answers, that area or aspect was marked for as many answers referenced it.

Area of Empowerment	Count of Mentions
Sense of Self	2
Community Engagement & Activism	54
Social	4
Career & Financial Preparedness	32
Education	23

Program Aspect	Count of Mentions
Waste	42
Energy	11
Water	13
Food, Health, and Agriculture	4
Building	2

Environmental Practices

In coding the question “Describe how [the Roots of Success class changed how you use water, waste, and energy]”, we counted frequency of responses for changes in waste, energy usage, and water usage, or those who did not change their environmental practices due to the class. If a respondent noted a change in more than one sector, each sector was marked. For those who did not change their environmental practices, we additionally coded if they specifically mentioned that their behavior had not changed because their facility or prison lifestyle prevents it.

Sector	Less Waste	Less Energy Usage	Less Water Usage	No Change	No Change Due to Inability
Count	12	16	27	12	5
Sample Size	58	58	58	58	12

Favorite Aspects

In coding the question “What did you like most about the Roots of Success program?” we coded across the areas of empowerment if mentioned as well as any specific aspects of the curriculum or model mentioned. Some participants provided multiple aspects, and all were counted and coded individually. If there was overlap in answer, both areas and/or aspects were marked.

Area of Empowerment	Count of Mentions
Sense of Self	1
Community Engagement & Activism	15
Social	7
Career & Financial Preparedness	7
Education	15

Program Aspect	Count of Mentions
Waste	6
Energy	3
Water	2
Food, Health, and Agriculture	3
Building	1
Peer-Led	4
Group Projects	1
Guidebook	1
Videos	6