Leadership of Heart and Mind: Examining the Mind and Skill Sets of Student Sustainability Leadership

Holly E. Parker MEd

University of Southern Maine, Muskie School of Public Service, hparker3@une.edu

Follow this and additional works at: https://digitalcommons.usm.maine.edu/muskie-dissertations

Part of the Educational Administration and Supervision Commons, Educational Assessment, Evaluation, and Research Commons, Educational Methods Commons, and the Scholarship of Teaching and Learning Commons

Recommended Citation


This Dissertation is brought to you for free and open access by the Student Scholarship at USM Digital Commons. It has been accepted for inclusion in Muskie School Dissertations by an authorized administrator of USM Digital Commons. For more information, please contact jessica.c.hovey@maine.edu.
Leadership of Heart and Mind: Examining the Mind and Skill Sets of Student Sustainability Leadership

By
Holly E. Parker
B.A. Dartmouth College, 1996
M.Ed. Harvard University, 2002

A DISSERTATION
Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Public Policy

University of Southern Maine
March, 2019

Advisory Committee:
Catherine Fallona, Ph.D., Associate Professor of Education and Human Development, Advisor
Glenn Cummings, Ed.D., President University of Southern Maine
Anthony Cortese, Sc.D., Co-Founder and Senior Fellow Intentional Endowments Network
LIBRARY RIGHTS STATEMENT

In presenting this dissertation in partial fulfillment of the requirements for an advanced degree from the University of Southern Maine, I agree that the Library will make it freely available for inspection. I further agree that permission for “fair use” copying on this thesis for scholarly purposes may be granted by the Librarian. It is understood that any copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Signature:

Date: March 27, 2019
Leadership of Heart and Mind: Examining the Mind and Skill Sets of Student Sustainability Leadership

By

Holly E. Parker

B.A. Dartmouth College, 1996

M.Ed. Harvard University, 2002

Approved by:

__________________________
Catherine Fallona, Chair

__________________________
Glenn Cummings, Member

__________________________
Anthony Cortese, Member
ABSTRACT

The purpose of this comparative case study was to deepen the understanding of post-secondary student sustainability leaders' motivations and identify the skills they have employed in order to inform the development of curricular and co-curricular sustainability leadership learning experiences. The study sought to answer three central research questions: What motivates students to become sustainability leaders in higher education settings? How do student sustainability leaders describe their role and effectiveness as leaders and in collaboration with or comparison to university personnel responsible for moving the institution's goals of sustainability forward? What leadership qualities and skills have student sustainability leaders used to transform complex higher education cultures? This study identified five potential participants currently engaged or engaged within the last three years in significant sustainability leadership initiatives in higher education. Three-part interviews were central to the study. Transcripts were coded in three stages: mindset, derived from the contrasting mindsets suggested by Schein (2015); skill set, derived from the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015); and open. Cross case analysis was used to identify themes consistent across participants. The five participants demonstrated a motivation to model, inspire and facilitate decision making that recognizes the interdependence and interconnectivity of human and nonhuman systems; expressed a personal or spiritual connection to nature; and spoke of their desire to benefit present and future systems. Participants demonstrated a shared skill set consistent with that suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). These findings suggest that providing experiential,
problem-based learning as well as peer and supervisory mentoring as part of
sustainability education is of high value and that the shared skill set can be used to build
learning outcomes, experiences and assessments. This study also suggests that higher
education institutions reexamine their priorities, policies and practices across the entirety
of their systems in order to ensure that sustainability is part of the fabric of their culture
and model sustainability as a priority that cuts across disciplines and silos.
TABLE OF CONTENTS

Chapter 1 - Introduction........................................................................................................ 1
  Problem Statement............................................................................................................. 2
  Purpose Statement........................................................................................................... 6
  Research Questions.......................................................................................................... 8
  Study Significance.......................................................................................................... 8

Chapter 2 – Review of the Literature.................................................................................... 11
  Introduction..................................................................................................................... 11
  Sustainability - A “Wicked” Problem........................................................................... 12
  Current Sustainability Practices and Outcomes in Higher Education......................... 16
  What is Sustainability Leadership?................................................................................ 20
  Sustainability Leadership - New Mindset, New Model............................................... 26
  Implications for Sustainability Leadership Education............................................... 30
  Challenges for Education for Sustainability Leadership........................................... 34
  Summary....................................................................................................................... 38

Chapter 3 - Methodology....................................................................................................... 40
  Overview and Questions.................................................................................................. 40
  Approach and Rationale.................................................................................................. 41
  Site or Population Selection and Sampling Strategies................................................ 43
  Data-Gathering Procedures......................................................................................... 46
  Analytic Framework and Preliminary Data Analysis Procedures................................ 47
  Trustworthiness and Methodological Limitations...................................................... 47
  Ethical Considerations................................................................................................. 49
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeline</td>
<td>49</td>
</tr>
<tr>
<td>Chapter 4 – Case Studies and Cross Case Analysis</td>
<td>50</td>
</tr>
<tr>
<td>Introduction</td>
<td>50</td>
</tr>
<tr>
<td>Case Study Summary - Sarah</td>
<td>52</td>
</tr>
<tr>
<td>Case Study Summary - Tom</td>
<td>55</td>
</tr>
<tr>
<td>Case Study Summary - Jennifer</td>
<td>58</td>
</tr>
<tr>
<td>Case Study Summary - Molly</td>
<td>61</td>
</tr>
<tr>
<td>Case Study Summary - James</td>
<td>64</td>
</tr>
<tr>
<td>Cross Case Analysis</td>
<td>67</td>
</tr>
<tr>
<td>Systems Mindset</td>
<td>67</td>
</tr>
<tr>
<td>Sustainability Leadership Skills</td>
<td>81</td>
</tr>
<tr>
<td>Open Coding Findings</td>
<td>104</td>
</tr>
<tr>
<td>Conclusion</td>
<td>111</td>
</tr>
<tr>
<td>Chapter 5 – Conclusion</td>
<td>114</td>
</tr>
<tr>
<td>Introduction</td>
<td>114</td>
</tr>
<tr>
<td>Interpretation of Findings</td>
<td>115</td>
</tr>
<tr>
<td>Implications for Sustainability Education Design</td>
<td>131</td>
</tr>
<tr>
<td>Suggested Research</td>
<td>133</td>
</tr>
<tr>
<td>Policy Implications</td>
<td>134</td>
</tr>
<tr>
<td>References</td>
<td>137</td>
</tr>
<tr>
<td>Appendix A - Interview Protocol</td>
<td>142</td>
</tr>
<tr>
<td>Appendix B - Sample Letter: Consent to Participate in Interview</td>
<td>144</td>
</tr>
<tr>
<td>Appendix C - Sample Recruitment Email</td>
<td>146</td>
</tr>
</tbody>
</table>
Appendix D – Case Study One – Sarah .......................................................... 147
Appendix E – Case Study Two – Tom .......................................................... 173
Appendix F – Case Study Three – Jennifer ............................................... 200
Appendix G – Case Study Four – Molly ...................................................... 227
Appendix H – Case Study Five – James ..................................................... 253
Chapter 1: Introduction

In 1990, 22 university presidents, chancellors, and rectors from institutions around the world drafted and signed the Talloires Declaration, which was an official commitment to sustainability in higher education: “Universities must play a strong role in the education, research, policy development, information exchange, and community outreach to help create an equitable and sustainable future” (University Leaders for a Sustainable Future, 1990). Assisted by international experts, these leaders defined the role of higher education in creating a sustainable future, a key component of which is the development of leaders who engage and empower a sustainability-literate citizenry in their workplaces and communities.

Universities educate many of tomorrow’s leaders, the people who will develop and manage society’s institutions. Universities therefore are responsible for increasing the awareness, knowledge, technologies, and tools that create an environmentally sustainable future. Universities have the expertise needed to develop an intellectual and conceptual framework to achieve this goal. Universities must play a strong role in education, research, policy development, information exchange, and community outreach so they can help create an equitable and sustainable future (University Leaders for a Sustainable Future, 1990).

The Talloires Declaration is an action plan for incorporating sustainability and sustainability literacy in teaching, research, operations, and outreach at colleges and universities. More than 500 universities in 50 countries have committed, through signing the Talloires Declaration, “to increase the awareness, knowledge, technologies, and tools to create an environmentally sustainable future” (University Leaders for a Sustainable
Furthermore, more than 600 college and university presidents in the United States have joined the Climate Leadership Network, committing to creating and implementing plans that incorporate carbon neutrality and resilience, and also including those principles in institutional planning (Second Nature, 2018). While approaches to sustainability education vary due to the complexity of integrating sustainability education with traditional higher education cultures and systems, understanding how sustainability education affects students in their development and expression of sustainability literacy is vital to educating leaders for a sustainable future.

While the distinct set of skills needed for sustainability leadership in higher education has yet to be adequately defined, Bendell and Little (2015), Metcalf and Benn (2013), Shriberg and MacDonald (2013), Egri and Herman (2000), and Tideman and Zandee (2013) have all suggested that a sustainability leader needs to demonstrate a high level of commitment and perseverance as well as a broad range of inter- and intrapersonal skills to navigate the challenges and opportunities presented by sustainability. The Talloires Declaration and the Climate Leadership Network commit higher education institutions to developing programs and learning opportunities that effectively amplify and activate the motivations of those who will be our future sustainability leaders. This will allow them to acquire the mindsets and skills they need to succeed.

Problem Statement

The 1990 Talloires Declaration, developed at the European Center of Tufts University, framed higher education’s responsibilities with regards to helping create and support a sustainable future. Institutions around the globe have affirmed their commitment to those responsibilities. Following the lead of the Brundtland Commission,
which defined sustainability as “to meet the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations World Commission on Environment and Development, 1987, p. 24), the Talloires Declaration established that: “Universities must play a strong role in the education, research, policy development, information exchange, and community outreach to help create an equitable and sustainable future” (University Leaders for a Sustainable Future, 1990). The Talloires Declaration also demanded that institutions model sustainability for their stakeholders, including students. Several other declarations followed throughout the 1990s and early 2000s, broadening the scope of committed institutions to more than 1,000 worldwide. These declarations confirmed that not only must institutions lead by example, but they must also provide the integrated learning experiences necessary to educate future generations of sustainability leaders (Lozano, Lukman, Lazano, Huisingnh & Lambrechts, 2013, p. 14-16).

Independent organizations and institutional consortia have arisen to support higher education initiatives, including Second Nature (1993), the Association for the Advancement of Sustainability in Higher Education (AASHE) (2001) and the Intentional Endowments Network (2014). These organizations and consortia have provided structures, research, and models that institutions can use to operationalize sustainable practices within their institutions, engage and empower all members of their communities in sustainability leadership, and develop and provide integrated sustainability programming for students in curricular and extracurricular spaces. For example, Second Nature helped create the Climate Leadership Network, a network of more than 600 colleges and universities in all 50 states and the District of Columbia “who have
committed to take action on climate and prepare students through research and education to solve the challenges of the 21st century” (Second Nature, 2017). Signatory institutions annually report on progress towards their individual goals and share their findings publicly. These initiatives demonstrate that independent organizations and institutional collaboration are playing a central role in actualizing the sustainability commitment of higher education.

Orr (2005) argued that our society must expect that higher education institutions to face the challenges of sustainability with all their knowledge, strength, expertise, and will. Regarding the skills and mindsets needed to lead a sustainable life, Orr wrote:

That level of awareness in turn requires an educational system that equips students to understand the basics of how nature works as a physical system and how human affairs are dependent on the health of that larger system…Schools and colleges ought to prepare the rising generation to take informed part in the great conversation of the 21st century that will occur in many variations around one central problem: how and by what terms we will calibrate human demands with the supporting capacity of nature on a global scale and do so fairly and wisely. (p. 94)

While more than two decades of policy have placed responsibility on higher education for the preparation of sustainability leaders, it is important to step back and understand the complexity of meeting the educational challenges posed by sustainability leadership education in higher education settings.

Sustainability leadership education ideally mirrors the sustainability challenge itself by modeling interconnectivity and collaboration and by challenging traditional
leadership paradigms and anthropocentric mindsets. However, the current American higher education model, which was designed to support research and scholarship in deeply specialized fields, has presented a challenge to providing the interdisciplinary education experiences that are needed to train future sustainability leaders. Those leaders will build teams across silos in order to liberate the creativity needed to honestly identify the root causes of sustainability challenges and to innovate solutions. This siloing of disciplines, celebration of specialty, and culture of competition have undermined sustainability leadership in practice and in preparation.

The creation of new majors such as environmental science, environmental studies, and even environmental policy has served only to create specialists who approach sustainability challenges in very narrow slices. In their 2009 survey of sustainability programs, McMillin and Dybal (2009) found that many institutions struggled to move beyond established structures to provide an integrated sustainability education experience: “Sustainability education in most universities is generally confined to specific courses, education is not necessarily linked to research, and both education and research are separate from campus operations” (p. 56). While institutions have invested in programs, McMillin and Dybal argued, they are merely tinkering rather than boldly creating solutions to this education challenge.

Cortese (2003) asserted that a culture of competition in higher education is also an obstacle to impactful sustainability education: “Designing a sustainable human future requires a paradigm shift toward a systemic perspective emphasizing collaboration and cooperation. Much of higher education stresses individual learning and competition, resulting in professionals who are ill prepared for cooperative efforts” (p. 16). If
institutions model an environment that values collaboration and cooperation less than individual achievement, that message will be received by students in that community.

Developing impactful sustainability education has challenged institutional leadership, structural, and even cultural paradigms. Cortese (2003) imagined higher education curricula that ask students (and faculty, staff, and administrators) to challenge the anthropocentric assumption that humans are the dominant species and separate from the rest of nature. Only by challenging its own assumptions can an institution create programs and experiences that permit the realignment of institutional and individual mindsets, foster collaborative exploration, and appeal to and amplify students' motivations to enter the sustainability leadership field. In order to meet the demands of commitments like the Talloires Declaration (1990), the Talloires Declaration on the Civic Roles and Social Responsibilities of Higher Education (2005), and the Presidents’ Climate Commitment (2007), institutions need to not only consider and challenge their own leadership practices and assumptions, but also to consider the motivations and ambitions of students when designing education programs and experiences.

**Purpose Statement**

Student sustainability leaders are critical to creating societal transformation, which means changing the way we think and act relative to the world around us. To meet these immediate leadership needs, higher education institutions must develop programs that rapidly train young leaders in large numbers and across disciplines. This study focused on the motivations and aspirations of five successful student sustainability leaders. These students and their institutions have moved the needle of sustainability
leadership training. Delving deeply into their lived experiences will inform sustainability leadership development programs and experiences in higher education settings.

This comparative case study, which was grounded in three-part interviews of recently or currently active student sustainability leaders in higher education settings, resulted in thick descriptions of the student sustainability leaders’ lived experiences. The researcher used criterion sampling of high-impact student sustainability leaders through collaboration with two national organizations: American Association for Sustainability in Higher Education (AASHE) and Second Nature. The three-interview model posited by Seidman (2014) allowed participants to reflect upon and make meaning of past experiences, placing them within the contexts of their own lives. Participant interview transcripts were coded in three stages: mindset, skillset and open. Cross-case analysis then identified themes across all participants. Through drilling down to the why and how of student sustainability leadership and using an inductive approach to align mindsets and skills with components of current leadership models, a new model emerged, one that addresses the leadership needs and demands of both sustainability and higher education.

The purpose of this study was to deepen the understanding of postsecondary student sustainability leaders’ motivations and identify the skills they have employed in their advocacy for campus sustainability issues in order to inform the development of curricular and cocurricular sustainability leadership learning experiences. The lived experiences of the five participants may inform the future development of the postsecondary learning experiences that are needed to educate sustainability leaders in accordance with policy commitments like the Talloires Declaration and the Presidents’ Climate Commitment. By deepening our understanding of postsecondary student
sustainability leaders’ motivations, this study can inform how institutions develop programs that foster and facilitate the essential realignment of mindsets, as well as the development of the skills required to effectively lead for sustainability.

Research Questions

The study focused on three central research questions:

- Why do students become sustainability leaders in their higher education settings?
- How do student sustainability leaders describe their role and effectiveness as leaders, in collaboration with or comparison to university personnel responsible for moving the institution's goals of sustainability forward?
- What skills or qualities do student sustainability leaders use in their higher education settings?

Study Significance

As more higher education institutions become explicitly committed to sustainability education, the demand for effective and impactful sustainability leadership education programs increases. A new approach was needed to better understand how sustainability leadership education, including the realignment of mindsets and the instruction of sustainability literacy competencies, inspires and impacts postsecondary students. This will help institutions develop more effective programs. By focusing on the lived experience of five learners who have expressed sustainability leadership through their successful advocacy for sustainable practices at their higher education institutions, this study sought to deepen understanding of what motivates student sustainability advocates, how student advocates have catalyzed sustainability efforts on college and
university campuses, and what leadership qualities and skills have they used to transform complex higher education cultures.

This study was a starting point for exploring what lies in the hearts and heads of student sustainability leaders so higher education institutions can design policies and programs that best serve their institutional commitment to developing leaders for a sustainable future. Narrative research has approached the question of student motivation and mindset in pursuing sustainability leadership goals in education settings. However, there was a gap in understanding why and how emerging sustainability leaders enter this complex and challenging field. Shriberg and MacDonald (2013) suggested that tapping into and even inspiring a student’s motivation is key to the effectiveness of sustainability education in higher education. With competing desires and ambitions framed by an anthropocentric environment, it is difficult to inspire students to engage with sustainability and assume leadership roles both in the present and future. As noted by Shriberg and MacDonald (2013):

Sustainability can form a strong basis for sustainability leadership training, if students are encouraged to think beyond the current state into an envisioned future of ecological, social and economic abundance in a steady-state economy. Few people wake up motivated to “sustain” – they want to create a better world. (p. 17)

In his evaluation of existing education programs, Warwick (2016) observed that the key to program success is paying attention to what drives each individual learner: “At the heart of [education for sustainable development] is explicit attention to learners being energized and enthused by exploring the ethical stance of holding an active concern for
well-being and stretching their compassionate consideration” (p. 106). In his study of sustainability leaders in for-profit and nonprofit settings, Schein (2015) concluded that it is the ecocentric mindset that provides a spiritual call to sustainability leadership: “A person with an ecocentric worldview maintains a more intrinsic and spiritual view of nature” (p. 62). However, none of these recent studies provided a lens through which one can understand the motivation of higher education students who are choosing the field of sustainability leadership and what they hope to achieve as sustainability leaders.

Exploring these questions from the student point of view is critical to informing the design of impactful sustainability leadership education experiences for higher education students.
Chapter 2: Review of the Literature

This study focused on five learners who have expressed sustainability leadership through their successful advocacy for sustainable practices at their higher education institutions. It thereby sought to deepen understanding of what motivates student sustainability advocates, how student advocates have catalyzed sustainability efforts on college and university campuses, and what leadership qualities and skills have they used to transform complex higher education cultures. This qualitative comparative case study of the lived experiences of five student sustainability leaders in higher education settings leveraged interviews. Its data and insights may help institutions shape sustainability education programs and policies that fulfill their responsibilities to educate sustainability leaders for our institutions, communities and global society. The study focused on three central research questions:

- Why do students become sustainability leaders in their higher education settings?
- How do student sustainability leaders describe their role and effectiveness as leaders, in collaboration with or comparison to university personnel responsible for moving the institution's goals of sustainability forward?
- What skills or qualities do student sustainability leaders use in their higher education settings?

This literature review will establish a working definition for sustainability, drawing from the work of practitioners Cortese (1999) and Friedlander (2015), and the qualitative work of Shriberg and MacDonald (2013) and Schein (2015). A review of current sustainability education practices and outcomes, grounded in the writings of Thomashow (2009), the narrative studies of Bartlett and Chase (2003, 2013), and the
qualitative work of Cummings (2010), will provide an overview of how sustainability and sustainability education is being pursued in American higher education settings. Egri and Herman (2000), Metcalf and Benn (2013), Tideman and Zandee (2013), and Bendell and Little (2015) will be used to illustrate the limitations of traditional leadership models in addressing the skills and attitudes needed to succeed as a sustainability leader. They also point to the need to reframe overarching mindsets before defining a new model for sustainability leadership. Finally, Cortese (2003), McMillan and Dybal (2009), and Shriberg and MacDonald (2013) will be used to define the structural and cultural obstacles to implementing impactful postsecondary sustainability leadership education that realigns mindsets and develops sustainability leadership and literacy skills.

**Sustainability: A “Wicked” Problem**

In order to address the research questions regarding sustainability leadership that are central to this study, a working definition of sustainability must be established. The concept of sustainability has evolved along with the environment. Tracking that evolution helps one understand why and how the term has adapted and grasp a workable definition of sustainability as both paradigm and goal.

Sustainability has grown from its roots in environmentalism to include three branches of interconnected and equal concern: environmental, social, and economic. In 1987, the U.N.’s Brundtland Commission codified sustainability as a goal: “To meet the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations World Commission on Environment and Development, 1987, p. 24). Sustainability is a framework or paradigm for thinking about a future in which environmental, social, and economic considerations are balanced while pursuing
development and an improved quality of life. These three spheres – society, environment, and economy – are intertwined. For example, a prosperous society relies on a healthy environment to provide food and resources, safe drinking water, and clean air for its citizens (UNESCO, 2012, p. 1).

Cortese (1999) described both the opportunities and challenges generated by applying the sustainability paradigm:

The sustainability paradigm reveals rich and attainable alternatives to our current patterns of behavior. All present and future humans can be healthy, have their basic needs met, have fair and equitable access to the earth's resources, have a decent quality of life and preserve the biologically diverse ecosystems on which we all depend. (p. 4)

Cortese extended the definition of sustainability established by Brundtland to specifically include the goal of meeting the present and future needs of humans as well as our biodiverse ecosystems. This explicit inclusion of natural systems and the elevation of their needs to the same level as those of humans recognized the interconnectivity between human and natural systems. It also highlighted the need for a significant cultural shift from an anthropocentric to a systems mindset.

Schein (2015) described the mindset shift required to apply the sustainability paradigm. Current human systems operate from an anthropocentric paradigm, one "based on a belief that human beings are at the center of the universe and the most important species on Earth. It assumes that all phenomena in the world should be interpreted in terms of human values and experiences." (Schein, 2015, pp. 59-60). This definition aligned with Cortese’s assessment of contemporary paradigms used to make
decisions and take action: “We continue to believe that more of the same resource intensive and pollution creating economic growth remains the best way to serve common good” (Cortese, 1999, p. 3). Achieving sustainability goals, Cortese argued, requires leaders in business, political, and social settings in vastly different cultures around the world to experience a dramatic shift in mindset.

Key to defining the sustainability paradigm is the recognition that nonhuman and human systems and concerns are inextricably interconnected and are of equal importance to the prosperity of the Earth. This interconnectivity leads to the “wickedness” of the sustainability paradigm. Gough, Castells, and Funtowicz (1997) defined *wickedness* as a scenario in which “facts are uncertain, values in conflict, stakes are high and decisions are urgent, and an extended peer community is required for the resolution of the relevant issues” (pp. 19-20). Shriberg and MacDonald (2013) applied the concept of wickedness to the sustainability paradigm and goal.

Wickedness...applies directly to climate change, biodiversity loss, freshwater depletion, social inequity, food access and many other sustainability-related issues. Moving on a sustainable path inevitably involves wicked characteristics like stakeholder conflict, deep ethical choices, and layers of uncertainty and interconnection. (p. 2)

The complexity and interconnectivity of sustainability as both paradigm and goal has generated confusion even for those trying to effect it. Shriberg and MacDonald (2013, p. 11) found that even those charged with educating sustainability leaders through professional development programs can have difficulty expressing just what
sustainability means. The nature of sustainability and its interconnectivity to ever-evolving human and natural systems make it a challenge to quantify.

Friedlander (2015) further illuminated the ambiguity of sustainability as a paradigm and goal, writing of sustainability: “Unfortunately vagueness and uncertainty have arrived alongside ubiquity. Popularity leaves the term meaning both everything and nothing” (p. 1). Friedlander (2015) suggested that a new lens - abundance - may not only change engrained anthropocentric mindsets, but also inspire action: “Insofar as abundance simultaneously expands economic opportunity, strengthens community, and restores the planet, it provides an important mechanism to accomplish the Paris climate goals” (p. 3). These goals echo the broader sustainability goals defined by Cortese (1999) and Shriberg and MacDonald (2013) and emphasize the interconnectivity of human and nonhuman systems.

Therefore, key foundational concepts emerge regarding the evolution of sustainability as both a paradigm and a goal:

- The sustainability paradigm is supported by three key pillars that must be considered when making decisions: environmental, social, and economic.
- The sustainability paradigm recognizes that these three pillars and their systems, human and natural, are deeply interconnected and are of equal importance to fulfilling short- and long-term sustainability goals for a healthy, just, and prosperous human society.
- Sustainability goals include actualizing the potential for mutual prosperity and abundance between human and natural systems and communities, recognizing
that only through pursuing mutual prosperity does one ensure each community’s survival.

For the purposes of this study, these three concepts effectively express both the interconnected nature of the sustainability paradigm and sustainability goals.

**Current Sustainability Practices and Outcomes in Higher Education**

Thomashow (2014) described sustainability as a complex, interconnected relationship between human and natural systems. He asserted that sustainability in higher education is a promise and contract. Sustainability offers an optimistic perspective of the future, but requires us, as learners and educators, to expand our understanding of the world and its systems: “In pursuing the dream of a sustainable community, we seek to optimize human flourishing in a dynamically changing earth system” (p. 7). Thomashow emphasized both the opportunity (promise) and the responsibility (contract) presented to society by sustainability. However, there are leadership and organizational challenges to seizing this opportunity and fulfilling this responsibility in higher education.

Sustainability has been expressed in higher education cultures and communities in a multidimensional way that has challenged how institutional stakeholders think, act, and interact. Each higher education institution, like any community, is unique; approaches to sustainability have varied by university or college. Consider how geography alone might inform or impact a sustainability initiative. While there has been no one clear pathway to sustainability in higher education, current approaches to sustainability in higher education have generally fallen into four categories, according to Cummings (2010):

(a) a general infusion of green concepts throughout the curriculum, (b) a focus on workforce development and preparation for green jobs, (c) research and
development related to renewable energies, and (d) promotion of environmental principles in the operation and facilities of the campus. (p. 2)

The unique character and culture of each higher education institution and the complexity of sustainability as a “promise and contract” has required higher education sustainability leaders to exhibit a range a skills and qualities in order to harness the strengths of the institution to overcome potential obstacles to transformation. However, as Cummings (2010) noted, research into effective sustainable leadership in higher education is lacking: “In other words, existing scholarship points to discrete challenges of implementing sustainability within the institution without a view to the overall leadership and organizational challenges inherent in the movement” (p. 16).

Sustainability leaders in colleges and universities have faced challenges particular to the culture of higher education. Bartlett and Chase (2003) said traditional academic disciplines and the silos they create impede the development of sustainability initiatives that, by definition, must be interdisciplinary and based on problem-solving:

Disciplinary boundaries in higher education today are perhaps the single largest impediment to achieving any kind of substantive transformation or reorientation. Resources are linked to disciplines... The structure of the institution often gives rise to a status quo that militates against interdisciplinary work. (p. 10)

Bartlett and Chase (2003) explained that individual courses are typically content-focused, “leading students to understand learning as a means for acquiring knowledge instead of addressing issues, problems, or challenges” (p. 10). This instructional design approach, while a staple in the higher education tradition, is not suited to the interdisciplinary demands of sustainability leadership education.
Bartlett and Chase (2003) also noted that there may be significant financial disincentives for institutions or their departments to engage in sustainability initiatives. Many academic and research disciplines rely on outside funding to pursue scholarship, encouraging institutions to move slowly if at all: “Financial realities have forced some disciplines to be grants driven, and many universities have built liaisons with corporations and government agencies that support research as well. These complex linkages can foster social conservatism and social engagement” (p. 13). Finally, institutional structures and bureaucracy have often thwarted sustainability initiatives. Thomashow (2014) noted, “Even the best-intended sustainability initiatives can get lost in a long list of institutional priorities, or subsumed in a less influential department, or buried by the contingencies of daily campus management” (p. 15).

As a result of structures and silos that limit the embedding of sustainability leadership in the formal curriculum, many initiatives have been relegated to the extracurricular, informal learning environment. Winter and Cotton (2012) wrote:

In response to the limitations posed by academic attitudes and disciplinary silos which hinder the embedding of sustainability literacy in the formal curriculum, enthusiasts have increasingly turned to other spaces where students share access and experiences, the most prominent of which is the university campus. (p. 785)

Many student sustainability leaders first expressed their advocacy skills in these environments, as captured by the narratives in Bartlett and Chase (2003, 2013).

Bartlett and Chase (2003) explored how the sustainability movement has been expressed in higher education institutions through a series of narratives that highlighted
the role of experiential cocurricular experiences. They emphasized the crucial role higher education must play in developing sustainability leaders:

Perhaps most important and most obvious, colleges and universities in the United States teach approximately 14.5 million students each year, and these future citizens and leaders will play a critical role in helping us move to a more sustainable future. (Bartlett and Chase, 2003, p. 5)

The demands on sustainability leaders are high; when placed in the context of higher education, they can seem daunting. However, within this complex multidimensional environment, student advocacy has led to revising and creating new sustainability policies. Experiential learning experiences have offered students the opportunity to understand and express themselves as sustainability leaders before they leave higher education. “At the heart of [education for sustainable development] is explicit attention to learners being energised and enthused by exploring the ethical stance of holding an active concern for well-being and stretching their compassionate consideration” (Warwick, 2016, p. 106). Indeed, as higher education institutions have embraced the responsibility of educating the sustainability leaders of the future, they have, perhaps in some cases inadvertently, fostered the sustainability leaders of the present.

Sustainability requires an understanding of the interconnectivity of human and natural systems. It follows that sustainability leaders will need be educated in and across all fields and disciplines to be effective. Martin and Jucker (2005) suggested that “graduates of every discipline…will need a sound working knowledge of sustainability” (p. 21). The universities’ roles in creating an equitable and sustainable future are diverse, ranging from education, research, policy development, and information exchange to
community outreach. Sustainability leadership education in higher education allows students to engage in all these endeavors:

It invites them to develop both the competencies and social capital oriented towards meeting the well-being needs of people and the natural environment, from the local to the global, today and tomorrow. [ESD] is based upon the premise that not only can students help others in their pursuit of a quality of life, but also that they themselves need the help of others—pointing towards the interconnected nature of how all our lives are bound together. (Warwick, 2016, p. 110)

The engagement of student sustainability leaders in higher education sustainability initiatives encourages the mastery of sustainability leadership competencies that are vital to their impact on current and future communities. However, sustainability leadership requires not only a skill set but also a mindset that fits the deep and complex interconnectedness that underpins the sustainability paradigm. In defining sustainability leadership, we must resist the instinct to begin with identifying specific competencies and skills and rather begin with the realignment of the required systems mindset.

**What is Sustainability Leadership?**

Considering the challenges posed by the sustainability paradigm and goals, what leadership frameworks, skills, and qualities, are most associated with sustainability leadership? Bendell and Little (2015) defined sustainability leadership as “any ethical behaviour that has the intention and effect of helping groups of people achieve environmental or social outcomes that we assess as significant and that they would not have otherwise achieved” (p. 16). Unpacking this definition isolates three key elements:
engagement of groups or teams, achievement of significant social or environmental outcomes, and ethical leadership that is vital to a team’s success. The second element, the achievement of significant social or environmental outcomes, clearly defines the area of leadership: sustainability. The first and third elements demand a deeper investigation of how and why leaders make decisions and take action.

Heifetz, Grahsow, and Linksy’s (2009) adaptive leadership model explicitly framed leadership as a tool for change:

Adaptive leadership is specifically about change that enables the capacity to thrive. New environments and dreams demand new strategies and abilities, as well as the leadership to mobilize them. As in evolution, these new combinations and variations helps organizations thrive under challenging circumstances rather than perish, regress, or contract. (p. 14)

The key success metric for adaptive leadership is “thriving.” However, their model falls short of defining what it means to thrive. Indeed, the crafting of that definition is left to leaders and their engaged stakeholders. Therefore, at its root, adaptive leadership does not serve sustainability leadership goals in that an organization can define success as something independent of or even opposed to sustainability.

However, there are elements of adaptive leadership that speak to Bendell and Little’s (2015) definition of sustainability leadership. For example, engaging teams and stakeholders has been a key adaptive leadership practice: “Adaptive success in an organizational sense requires leadership that can orchestrate multiple stakeholder priorities to define thriving and then realize it” (Heifetz, Grashow, & Linsky, 2009, p. 15). This skill speaks to harnessing the potential of the deeply interconnected nature of
sustainability contexts and challenges. For every sustainability challenge there will be many stakeholders with widely varying needs. However, without a foundational and shared mindset that clearly understands and explicitly values the interconnected and equal relationship between human organizations or systems and natural systems, these organizational priorities may impede sustainability practices. Adaptive leadership practices may result in an organization that thrives at the expense of other human organizations and natural systems.

Bennis’s (2009) servant leadership model derives its power and efficacy from a focus on motivation and self-knowledge. He described the key mindsets and actions that define servant leadership, largely focusing on corporate settings. Most relevant to Bendell and Little’s (2015) definition of sustainability leadership are the practices and values related to the internal development of a leader, in particular the role of constant self-reflection and adapting and confirming the definition of self within ever-evolving contexts. The first ingredient in effective servant leadership, Bennis (2009) argued, is a guiding vision:

The leader has a clear idea of what he or she wants to do – professionally and personally – and the strength to persist in the face of setbacks, even failures. Unless you know where you are going, and why, you cannot possibly get there. (pp. 33-34)

Bennis indicated that effective leaders must have a high degree of self-knowledge and find strength in their motivation. While this resonated in Bartlett and Chase’s (2003, 2013) narratives, which highlighted the need for clear and strong motivations among sustainability leaders, Bennis (2009) placed this guiding vision in the corporate context, a
context that is still driven by “the current ideology of growth” (Cortese, 1999, p. 3).

While Bennis’s (2009) servant leaders may have a strong, deeply personal motivation, they may not yet have realigned their overarching mindset to truly lead for sustainability.

Bennis (2009) noted the increasing complexity in which all leaders must operate:

Life on this turbulent complex planet is no longer linear and sequential, one thing logically leading to another. It is spontaneous, contrary, unexpected and ambiguous. Things do not happen according to plan and they are not reducible to tidy models. We persist at grasping at neat, simple answers, when we should be questioning everything. (p. 19)

Bennis’s description of this “turbulent, complex planet” neatly aligns with the interconnectivity of the sustainability paradigm’s many actors and stakeholders. In such a context, a leader must expect answers to be messy. However, while he indicated that increased globalization and the rise of technology have been characteristic of this turbulence, he did not suggest that the underlying mindset of corporate leadership, one that Schein (2015) described as anthropocentric, requires change in order for leaders to find innovative solutions to contemporary challenges. If we develop solutions from an anthropocentric mindset, we will only tinker with sustainability challenges rather than finding truly impactful solutions. While servant leaders inspire followers with deep self-knowledge and commitment to a goal, the servant leader model falls short of defining the crucial mindset needed by the sustainability leader.

The leap to transformational leadership in Bendell and Little’s (2015) definition of sustainability leadership is the most natural one. Tideman and Zande (2013) summarized Burns’s definition of transformational leadership:
A process in which leaders and followers help each other advance to a stronger intrinsic motivation with a view of addressing unmet social needs by transforming the status quo. [Burns] found that transformational leaders offer followers something more than just working for self-gain; they provide followers with an inspiring mission and vision and give them a renewed identity. In addition, this type of leader encourages followers to come up with new creative ways to challenge the status quo and to alter the environment to support people in successfully meeting their needs. (p. 26)

Tideman and Zandee (2013) argued that elements of transformational leadership have been effective in a complex sustainability context. They identified key actions – providing an inspiring mission, encouraging creativity, meeting people’s needs – that sustainability leaders and transformational leaders share.

In 1994, Bass further refined Burns’s definition to link actions (e.g., taking risks or challenging assumptions) with mindsets (e.g., connectedness or creativity) that are key to successful transformational leadership. Tideman and Zandee (2013) summarized Bass’s central findings. Leaders activating a connectedness mindset take each individual into consideration, make their followers feel important, and inspire a sense of intrinsic motivation and their team members’ best efforts. Leaders activating a combination of continuity and creativity mindsets take risks and challenge assumptions, fostering creativity. Leaders activating a combination of consciousness and connectedness mindsets communicate a hopeful and inspiring vision and instill their teams with a sense of empowerment and purpose. Finally, leaders activating a purely consciousness mindset demonstrate complete integrity by consistently modeling the change they seek to create:
they are role models (Tideman & Zandee, 2013, p. 26). By linking mindsets with actions, Bass provided a framework that Tideman and Zandee applied to sustainability leadership. Using this adapted framework, Tideman and Zandee argued that sustainability leaders can make decisions and take actions that inspire, stimulate, and influence their teams to challenge the status quo.

Egri and Herman’s (2000) mixed methods study of 73 leaders of for-profit green businesses and nonprofit environmental organizations also suggested that elements of transformational leadership align with the demands of sustainability leadership. Providing an inspiring mission and a role or identity for team members to leverage in pursuit of that mission allows a leader and team to effectively challenge the status quo. Subjects identified the key functions of leadership in a sustainability context: “Environmental leaders identified a need, clarified the vision, and inspired followers who might support their vision” (Egri & Herman, 2000, p. 599). This statement echoed Burns’s (2010) definition of transformational leadership in its focus on the role of providing an inspiring vision and empowering followers to actively support that vision.

However, Egri and Hermann (2000) suggested that while some key sustainability leadership skills, qualities, and mindsets align with Burns’s transformational model, the need to challenge the status quo in a complex, interconnected space such as sustainability demanded a more diverse set of skills and qualities, as well as a specific ecocentric mindset, that stand apart from the transformational model. Of criteria particular to sustainability leaders, Egri and Hermann (2000) wrote: “One criterion might be that the personal values of potential leaders include high levels of ecocentric, self-transcendence and openness-to-change values” (p. 599). Egri and Hermann’s emphasis on both
transformational and transactional roles is important because it indicates that the
transformational leadership model has not fully aligned with the diverse demands placed
on sustainability leaders by both the “wicked problem” of sustainability and the
interconnected context in which they work.

**Sustainability Leadership: New Mindset, New Model**

Egri and Hermann (2000) suggested that sustainability leadership may require its
own model, a unique set of skills, qualities, and mindsets:

> Even so, to the extent that being environmentally proactive challenges the societal
> and industrial status quo, we suspect that these individuals require substantively
different configurations of personal values, attributes, and skills than is the norm
for those working and non-environmental sector organizations. (p. 599)

Tideman and Zandee (2013) reached a similar conclusion: “Sustainability leadership
requires a redefinition of core concepts that underpin current mainstream business
leadership practice” (p. 18). While some sustainability leadership skills align with
traditional transformational leadership models, particularly elements pertaining to
providing an inspiring vision and empowering followers to actively engage and support a
vision, leadership within the sustainability paradigm requires a new mindset.

Metcalf and Benn (2013) reviewed scholarship regarding the skills and qualities
needed for successful sustainability leadership in the business world. Some findings
regarding the complexity of what it means to be a sustainable organization illuminated
the qualities and skills needed by sustainability leaders in all contexts, including
education. They specified skills such as complex problem solving, engaging stakeholders
in change, and demonstrating high emotional intelligence (Metcalf & Benn, 2013, p.
Metcalf and Benn cited Funke's (2010) term *complex cognition*, which recognizes that complex problem solving includes emotion and motivation, aspects not found in simple problem solving. As a result, sustainability leaders need the motivation to persevere in complex, nonlinear, and even chaotic environments (Metcalf & Benn, 2013, p. 372). They concluded: “Leadership for sustainability requires leaders of extraordinary abilities. These are likely to be leaders who can read and predict through complexity, can think through complex problems, engage groups in dynamic adaptive organisational change and can manage emotion appropriately” (Metcalf & Benn, 2013, p. 381).

According to Tideman and Zandee (2013), a key to success for a sustainability leader is adopting a mindset appropriate to the relationship of humans and their systems to the larger world: “While sustainability leadership builds on transformational leadership, sustainability leadership is broader in scope given the modern context of complexity and interdependence of stakeholder needs” (p. 30). Although transformational leadership addresses some elements of sustainability leadership, the sheer wickedness of the sustainability problem has defied traditional leadership models. Shriberg and MacDonald (2013) wrote: “The systems and ecological lens is required for actualization when dealing with a wicked problem like sustainability. Sustainability leadership cannot be taught solely with traditional leadership theory” (p. 18). Educators often speak of acquiring many tools in one’s collection so one always has the right tool for the right job. However, a leader’s mindset allows a leader to not only choose the right tool in the moment, but to care for and maintain all the tools in preparation for meeting stakeholder needs and longer term sustainability goals.
Cortese (1999) asserted that impactful sustainability leadership requires a drastic mindset shift, moving humans and human systems from a position of dominance and priority to one of interconnectedness and equality with all Earth systems:

Our vision of a just and sustainable society must be informed by the ecological perspective that humans are part of nature and that all social, economic and environmental systems are interdependent. This perspective immediately reveals that perpetual growth as the defining characteristic of a healthy society is no longer tenable. Rather, a sustainable society is one which measures its development in qualitative as well as quantitative terms, often seeking the virtue of enough rather than more. (p. 4)

This shift has fundamentally challenged the status quo because it questions the very validity of the way that status quo was established and is maintained.

Bendell and Little (2015) also pointed to the anthropocentric mindset that is typically part of traditional leadership models as a barrier to developing genuine and effective sustainability leadership. Our reliance on traditional leadership models that focus on the “heroic leadership” of the individual has isolated leaders from followers and obstructed the collaborative team approach needed to develop sustainability solutions (Bendell & Little, 2015, p. 19). While traditional leadership models like adaptive, service, or transformational leadership have skills and qualities that align with sustainability leadership practices, the anthropocentric mindset that places human needs at the center and prizes our perceived ability to control both natural and human systems has prohibited us from truly working and leading in a sustainability paradigm.
Tideman and Zandee (2013) examined the assumption at the root of the current “humans first” paradigm:

These assumptions were derived from Newtonian physics and Darwinian biology, in which economy, society, environment and wildlife were seen as separate worlds that humans—the “fittest” among competing species—hold dominion over in order to extract value from, against as low as possible cost, and utilise it for their human agendas. (p. 19)

Cortese argued that this mindset stands in opposition to the sustainability paradigm and its goals. We simply cannot arrive at solutions to this wicked problem with the idea that humans are the “fittest.” Traditional leadership mindsets and models result in only tinkering with sustainability challenges rather than innovating solutions.

The first and most important quality of a sustainability leader, therefore, must be a belief in and application of a systems worldview. Tideman and Zandee (2013) emphasized:

The new world-view is one in which business, economy, environment and society are no longer separate worlds that meet tangentially, but a single, inseparable entity: as they are interconnected and interdependent, decisions need to be made with an eye to the complete picture (p. 19).

In his qualitative study of more than 75 sustainability leaders, Schein (2015) suggested this shift to a systems mindset that places ecological concerns on an equal terms with human systems is at the core of an emerging and unique sustainability leadership model: “As sustainability leaders, it is vitally important that we understand the pervasiveness of anthropocentric worldviews and work on new ways to overcome this
social and psychological phenomenon” (p.4). Schein argued that not only must sustainability leaders hold a systems worldview, they must also cultivate it in others.

Schein argued that a shift in mindset could unleash the creativity and innovation needed to address sustainability challenges: “The post-conventional archetype of ‘Collaborator-in-Chief’ can lead to new breakthrough environmental technologies and suggest how sustainability leadership must evolve in the future” (Schein, 2015, p. 147). A systems worldview embeds all human systems in the larger whole. Just as natural systems evolve to meet the needs of their stakeholders in a changing world, so too must sustainability solutions and leadership. Therefore, defining an emerging sustainability leadership model firmly founded in a systems worldview will be akin to taking a snapshot: we will capture a moment, a set of skills and qualities appropriate to a time and place, but must understand that that picture may look very different in moments to come.

As Tideman and Zandee (2013) wrote:

In short, the future leader’s mindset recognizes the changing context with trends towards increasing complexity and interdependence among stakeholders. In addition, this type of leadership employs a long-term view, a sense of continuity, while exhibiting open-mindedness, moral courage and a high degree of self-knowledge. (p. 24)

Implications for Sustainability Leadership Education

In their review of current sustainability leadership programs, Bendell and Little (2015) sought to inform their own program development and delivery. They determined that many programs are stymied by an adherence to traditional leadership models:
Our experience is that people are calling for more leadership without reflecting on what leadership means, and also, when they do, too often relying on mainstream management discourses about leadership… We should not simply seek to add more sustainability to leadership or add more leadership to sustainability, but challenge assumptions about ‘leadership’ that have added to the persistent social and environmental problems we experience today. (p. 14)

Just as leaders must challenge the entrenched anthropocentric mindset, they must also challenge traditional leadership models. In essence, they are challenging the status quo at all levels, from mindset to skillset. Only by taking this very critical eye can a leader analyze and transform the aspects of the status quo that have led to the sustainability challenges we face today (Bendell & Little, 2015, p. 23). It is the responsibility of educators to lead this challenge to current paradigms:

If as educators we have come to the understanding that current paradigms of thought in economy and society are fundamentally inhibiting our ability to live in more sustainable ways, then education for liberation is a key part of developing leadership for sustainability. (Bendell & Little, 2015, p. 23)

Therefore, those developing and delivering sustainability leadership education experiences must first liberate themselves from traditional models and shape programs that liberate learners, who will then, in turn, liberate stakeholders.

Once one has challenged the anthropocentric mindset and adopted a systems mindset, a sustainability leader must develop the skills needed to lead in a deeply interconnected context. A sustainability leader cannot stand alone: he or she must engage with teams and stakeholders and foster the development of shared leadership skills and
mindsets. An emerging sustainability leadership model for business sets aside traditional assumptions about individual strength and having a “senior leader” to promote a leadership that is shared and is attainable for all (Bendell & Little, 2015, p. 20). Tideman and Zandee (2013) defined “The 6 Cs” of sustainability leadership: three that define mindsets and three that define skill sets. In Tideman and Zandee’s model, which is a clear evolution from Bass’s extension of Burns’s transformational leadership model, context, consciousness, and continuity are the drivers or mindsets that underpin all action. A context mindset is defined as recognizing interdependence, interconnectivity, and complexity. A consciousness mindset focuses on belief systems, worldviews, and attitudes. A continuity mindset focuses on the long-term and is centered on a common purpose. Connectedness, creativity, and collectiveness describe the qualities and skills needed to act impactfully. Connectedness includes serving all stakeholder needs and demonstrating collaboration, trust, and fairness. Creativity includes innovation, a focus on new models, and creating shared value. Collectiveness includes a focus on scaling up initiatives for collective impact and supporting sustainable consumption. Tideman and Zandee (2013) summarized: “[The 6 Cs] enable the emergence of collective leadership necessary for sustainable value chain transformation and large-scale social sustainable impact” (p. 30). Central to Tideman and Zandee’s argument is the need for collective leadership, which allows for the growth and embedding of the systems mindset not just in business contexts, but in social and environmental contexts as well.

As Bendell and Little (2015) wrote, sustainability leadership is an ethical endeavor. The values and beliefs that underlie that endeavor must be shared and adopted by many in order to thrive. In their qualitative review of sustainability leadership
programs, Shriberg and MacDonald (2013) interviewed program developers and directors. They suggested that by empowering the team through both modeling systems thinking and behavior and explicit guidance, a sustainability leader is also a teacher:

One program director emphasized the leveraging power of groups, “the ability of individuals to make more change than they could have just through their own efforts...any time an individual is able to leverage their time and get others to follow their example or take efforts that they wouldn’t have done otherwise, really leveraging their own thoughts and their own effort.” (p. 12)

Therefore, as one develops education experiences that support sustainability leadership, one must consider that a sustainability leader must teach as well as lead.

Finally, the emerging and constantly evolving sustainability leadership model has challenged educators to create experiences that encourage leaders to use a systems mindset to reframe sustainability problems. The triple bottom line lens – economic, social, and environmental sustainability – is a common way of describing the practical application of the systems mindset (Shriberg & MacDonald, 2013, p. 11). Shriberg and MacDonald (2013) wrote: “Moving on a sustainable path inevitably involves wicked characteristics like stakeholder conflict, deep ethical choices, and layers of uncertainty and interconnection. These qualities require a leadership theory and practice suited to cross-boundary, systems-oriented thought and action” (p. 2).

In addition, Cortese (1999) argued, delving past the symptoms of far-reaching systemic issues allows sustainability leaders and their empowered teams to innovate solutions that address root causes:
The way we have dealt with most environmental issues such as air or water pollution is to view them as discrete problems with solutions which often end up moving pollution around rather than getting to the root of the problem and eliminating it. Creating, on the other hand, is bringing into existence some thing or situation that we want -- which is usually a much better motivator for change than a problem we need to eliminate. (p. 4)

Cortese argued that we must support the development of sustainability leaders who will help inspire and create solutions rather than tinker with short-lived quick fixes.

**Challenges for Education for Sustainability Leadership**

As suggested by Thomashow (2014), Warwick (2016), and Bartlett and Chase (2003, 2013), sustainability leadership education ideally mirrors the sustainability challenge itself by modeling interconnectivity and collaboration and challenging current leadership paradigms and anthropocentric mindsets in both society and in higher education itself. However, the current American higher education model, which is designed to support research and scholarship in deeply specialized fields, has presented a challenge to providing the interdisciplinary curricular and cocurricular education experiences needed to train future sustainability leaders. Those leaders will need to build teams across these silos in order to liberate the creativity and innovation required to identify the root causes of sustainability challenges and find real solutions. Orr (1994) argued that sustainability education is not a problem for education to solve, but rather a core challenge to the purpose of education itself: “The kind of education we need begins with the recognition that the crisis of global ecology is first and foremost a crisis of values, ideas, perspectives, and knowledge, which makes it a crisis of education, not one
in education” (p. 5). Whether an institution has signed Talloires or any other sustainability commitment, Orr argued, it must take responsibility for this “crisis of education.” However, there have been significant barriers to achieving sustainability education goals in American higher education settings.

Shriberg and MacDonald (2013) pointed to higher education’s current reliance on traditional leadership models as a barrier to effective sustainability leadership education: “Leadership for sustainability is more than the application of traditional leadership theory and environmental leadership to sustainability. Therefore, institutions of higher education have a novel and difficult task to prepare students to become sustainability leaders” (p. 3). The very leadership models that university and college leaders have relied upon to run their institutions are not suited to the challenges presented by sustainability. A sustainability leadership model can be prototyped by unbundling traditional leadership models, as suggested by Tideman and Zandee (2013), and rebundling discrete skills under a systems mindset and approaches that value deep collaboration, empowerment of stakeholders, and a commitment to serving interconnected and interdependent systems. In order to create the programs and experiences needed to educate leaders in this model, institutional leaders will need to challenge their own leadership paradigms.

As suggested by Bartlett and Chase (2003) American higher education culture has also been a challenge to creating the sustainability leadership programs suggested by the Talloires Declarations and other national and international policy statements. The siloing of disciplines, celebration of specialty, and culture of competition have undermined sustainability leadership in both practice and preparation. Cortese (1999) noted that
training specialists has not met society’s need for sustainability leadership: “The training of specialists is not an adequate response to the environmental problems we face… We need all professionals to carry out their lives and activities in a manner that is environmentally sound and sustainable” (p. 11). The creation of new major programs such as environmental science, environmental studies, and even environmental policy has only created specialists who will approach sustainability challenges in slices. If institutions do not approach their commitment to sustainability education from the premise that all students must have the competencies needed to live sustainability minded lives, then they are not fulfilling their Talloires commitment.

In their survey of sustainability programs, McMillin and Dybal (2009) found that many institutions still struggled to move beyond established structures to provide an integrated sustainability education experience. They found that most universities confined sustainability topics and skills to specific courses and that education is not often linked to research. Sustainability education and research are further siloed from campus operations (McMillin & Dybal, 2009, p. 56). While institutions are investing in programs, this fragmentation, McMillin and Dybal argued, results in mere tinkering rather than boldly innovating solutions to sustainability challenges.

Shriberg and MacDonald (2013) echoed this finding while suggesting a possible path to better outcomes:

While many programs strive to be interdisciplinary, approaching from multiple disciplines without integration may lead to confusion and frustration rather than skills development. Leading programs use integrative methods – such as systems
thinking – to help establish a pattern of thinking among leaders that is more than the sum of the individual disciplines. (p. 17)

McMillin and Dybal (2009) and Shriberg and MacDonald (2013) pointed to the need for integrated learning experiences that will improve sustainability education outcomes.

However, as Cortese (2003) pointed out, it is not just the structural silos in higher education that have been a barrier to such integrated experiences, but it is also the culture of competition. Higher education cultures and systems have promoted individual learning and competition, rather than supporting the collaborative approaches required of sustainability leadership. Furthermore, faculty reward structures, including tenure and research, have often discouraged interdisciplinary approaches to research and scholarship (Cortese, 2003, p. 16). If institutions are modeling an environment in which collaboration and cooperation are less valued than individual achievement, that message will be received by students.

It is clear that developing impactful sustainability education has been a challenge for institutional leadership, structural, and even cultural paradigms. Cortese (2003) argued that this is why so few institutions have been willing to make the investment, not only of money but of human and political capital, to truly engage in its pursuit. Yet, according to the Talloires Declaration, there is no other framework in the world better suited and positioned to tackling these challenges. Cortese (2003) imagined higher education curricula that ask students (and faculty and staff and administrators) to challenge the following assumptions: humans are the dominant species and separate from the rest of nature; resources are free and inexhaustible; Earth’s ecosystems can assimilate all human impacts; technology will solve most of society’s problems; all human needs
and wants can be met through material means; and individual success is independent of the health and well-being of communities, cultures, and the life support system (p. 17). Only by challenging its own assumptions first can an institution create programs and experiences that allow for this kind of collaborative exploration.

Finally, Shriberg and MacDonald (2013) suggested that tapping into and even inspiring a student’s motivation is key to the effectiveness of sustainability education in higher education. With competing desires and ambitions framed by an anthropocentric environment, it has been difficult to inspire students to engage with sustainability and assume leadership roles both in the present and future:

Sustainability can form a strong basis for sustainability leadership training, if students are encouraged to think beyond the current state into an envisioned future of ecological, social and economic abundance in a steady-state economy. Few people wake up motivated to “sustain” – they want to create a better world. (Shriberg & MacDonald, 2013, p. 17)

By engaging in institutional leadership practices that clearly value the triple bottom line approach and offer integrated experiential learning experiences that help students engage in those leadership practices, institutions can begin to approach their sustainability education goals.

Summary

Data drawn from qualitative studies and reviews of existing sustainability leadership professional development programs suggests that education for sustainability leadership is as complex and dynamic as the wicked problem itself. The sustainability field, defined by a web of interdependent relationships, demands first a shift in mindset
from anthropocentric to systems. Only then can some of the skills attributed to
traditional leadership models be effectively employed. While higher level mindsets and
skills, such as collaboration or communication, can be defined through Schein (2015),
Bendell and Little (2015), Cortese (2003), Shriberg and MacDonald (2013), Tideman and
Zandee (2013) and Metcalf and Benn (2013), the measurable application of those
mindsets and skills has been challenging to define.

In higher education, qualitative data drawn from interviews with university
leadership and program directors has suggested that education for sustainability
leadership challenges the very structure of American higher education institutions.
Cortese (2003) observed that higher education is deeply siloed into disciplines, units, and
programs. However, the mastery of sustainability leadership skills requires that students
engage across disciplines in environments that mirror the interconnected and
interdependent mindset that must drive all sustainability leaders. As Bartlett and Chase
(2003, 2013) exhibited in their narrative collections, students more often than not
experienced impactful education for sustainability leadership in cocurricular spaces such
as club leadership or community advocacy. While program directors and university
leadership voices have been represented as well as any in this emerging field of study, we
need to hear student voices so we can better understand why they want to become
sustainability leaders and how they feel they can best acquire the mindsets, skills, and
qualities needed to fill these roles in their current and future communities.
Chapter 3: Methodology

Overview and Research Questions

The study sought to answer three central research questions: What motivates students to become sustainability leaders in higher education settings? How do student sustainability leaders describe their role and effectiveness as leaders, in collaboration with or comparison to university personnel responsible for moving the institution's goals of sustainability forward? What leadership qualities and skills have student sustainability leaders used to transform complex higher education cultures? By understanding what motivates learners, as well as the skills they aspire to acquire, institutions can better design programs that develop future sustainability leaders.

The mindset characteristics that emerged from the literature review were used to create a framework that can be used to examine the motivations of student sustainability leaders. Figure 1 distinguishes an anthropocentric mindset from a systems mindset.

![Figure 1. Anthropocentric and systems mindset framework.](image)
The researcher also developed a cluster of sustainability leadership skills, as suggested by the work of Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). This skill set was used as a lens for examining the skills needed or utilized by student sustainability leaders in their work on higher education campuses. Figure 2 details the seven unique skills that comprise the suggested skill set.

![Sustainability Leadership Skills](image)

*Figure 2. Sustainability leadership skills set.*

The skills cluster identified by these studies served as a lens by which to approach the second and third research questions.

**Approach and Rationale**

A qualitative approach was the most appropriate for this study. Driven by a desire to explain social behavior through existing or emerging concepts, qualitative research focuses on the way people interpret and make sense of lived experiences and the world in which they live (Yin, 2016, pp. 9-10). The central research questions placed the participant at the center, requiring them to process and reflect on their lived experience as a sustainability leader as well as on events and experiences that have motivated that leadership. The research questions were also context specific, focusing on the sustainability leadership experience in higher education settings. As Yin (2016) wrote,
"Qualitative research explicitly embraces the contextual conditions – that is the social, institutional, cultural, and environmental conditions – within which people’s lives take place (p. 9). Considering the importance of the participants’ lived experiences and their context to the research questions, a qualitative approach was most appropriate.

While a phenomenological study could have been used to address the central research questions, a comparative case study model allowed the researcher to not only delve into the participants’ lived experiences from their points of view, but to identify themes that were consistent across all participants using cross-case analysis. Yin (2016, p. 9) defined several features that distinguish qualitative research:

- studying the meaning of people’s lives in the real-world roles,
- representing the views and perspectives of the [participants] in a study,
- explicitly attending to and accounting for real-world contextual conditions, and
- contributing insights from existing or new concepts that may help to explain social behavior and thinking.

A case study addressing these features provides rich data that answers the central research questions.

At the center of each case study was a set of three-part interviews conducted with five participants. Seidman (2014) argued that interviewing allows participants to create meaning or make sense of experiences in complex environments and with complex issues: “Individuals’ consciousness gives access to the most complicated social and educational issues, because social and educational issues are abstractions based on the concrete experience of the people” (p. 7). Sustainability in a higher education environment is multilayered and requires the engagement of stakeholders across political
and professional affiliations. To be a leader in this space requires commitment and perseverance. To access this complex set of issues, a qualitative approach was not only appropriate but necessary. The trustworthiness of the case study was supported by the collection of rich data, participant validation, and cross-case analysis of the five participants’ experiences in five distinct settings.

This study employed a descriptive interpretive paradigm in its approach. Rossman and Rallis (2017) wrote:

The descriptive interpretive paradigm holds improvement assumptions about the social world and interpretivist assumptions about epistemology. Interpretive research typically tries to understand the social world as it is (with the possibility of modest improvement) from the perspective of individual experience. (p. 34)

The purpose of this study was to deepen the understanding of postsecondary student sustainability leaders’ motivations and identify the skills they have employed to advocate for campus sustainability issues in order to inform the development of curricular and cocurricular sustainability leadership learning experiences. Therefore, a descriptive interpretivist paradigm was most appropriate because it would result in data and insights that can help higher education institutions shape sustainability leadership programs and policies that fulfill their responsibilities as expressed by the Talloires Declaration: to educate leaders for sustainability in our institutions, communities, and global society.

**Site or Population Selection and Sampling Strategies**

This study identified five participants who were engaged, currently or within the last three years, in significant sustainability leadership initiatives in higher education. Identifying impactful leaders regardless of their institution’s current level of
sustainability success was key to understanding how and why student leaders persist in environments that may not be welcoming to their passions and goals.

Previous studies of sustainability leadership in higher education focused on site selection to identify study participants. In other words, institutions were first identified as appropriate for the study based on established criteria. In Cummings (2010), four higher education institutions were selected based on meeting four key criteria: “a general infusion of green concepts throughout the curriculum; a focus on workforce development and preparation for green jobs; research and development related to renewable energies; and promotion of environmental principles in the operations and facilities of the campus” (p. 38). This site-first strategy identified institutions with successful sustainability narratives and then gained access to the leaders who participated in creating those narratives. However, this strategy would have limited the scope of this study as it would not allow for the identification of student sustainability leaders who were impacting their institution’s sustainability initiatives and approaches. Understanding the why and how of student sustainability leadership would be better served by participants who were still working to bring their institutions to the level of sustainability success that were used as criteria for Cumming.

Rather than use a site-first strategy, this study used criterion sampling of high-impact student sustainability leaders through collaboration with two national organizations: American Association for Sustainability in Higher Education (AASHE) and Second Nature. Both organizations train and recognize excellence in student sustainability leadership. The AASHE Sustainability Awards recognize sustainability
achievements, research advancements, and student leadership. The criteria for these awards align with this study’s research question in terms of probing action and impact:

- **Overall impact** – How much of an impact did the project make? Breadth of impact
- **Breadth of impact** – Did the project advance sustainability in many dimensions or only one?
- **Stakeholder involvement** – Did the project engage multiple campus stakeholders (students, faculty, staff, community members, etc.)? (AASHE, 2017)

While the application for the award is a self-reporting exercise, the information was validated by cross checking with the higher education institution.

Second Nature’s Climate Leadership Awards offer a similar mechanism for identifying student sustainability leaders. While the Climate Leadership Awards recognize institutions for their growing or continuing commitment to “innovative and advanced leadership in sustainability, climate mitigation, and resilience,” embedded in the application are key criteria that would identify impactful student sustainability leaders within these institutions. For example, “evidence of campus community engagement” and “student preparedness” would identify individuals who have made an impact on their institution’s sustainability initiatives (Second Nature, 2017).

The initial field of possible participants were those who had won these awards since 2015. Consideration was then given to how well the sample would reflect engagement with the three pillars of sustainability – economic, social, and environmental – to narrow the field. Once that filter was applied, site was considered through criterion sampling as well, with the hope that the five study participants would be drawn from higher education settings that offered contrasting environments in which students are
expressing sustainability leadership. For example, Cummings (2010) contrasted leadership in two community college and two state university settings.

**Data-gathering Procedures**

The three-interview model posited by Seidman (2014) was appropriate for this proposed study because it allowed participants to reflect upon and make meaning of past experiences, placing them within the contexts of their own lives. This model satisfied Yin’s (2016) second feature of qualitative research: “Representing the views and perspectives of the [participants] in a study” (p. 9). The three foci of the interviews — focused life history, the details of experience, and reflection on meaning — were suited to research questions that delve into participants’ motivation for action. In the first interview, participants were asked to define sustainability, reflect on their first experiences with or exposure to sustainability practices, identify leaders whom they admire, and describe the skills they employ. In the second interview, participants were asked about their motivation to lead for sustainability, reflect on an experience of sustainability leadership, and describe the skills they used in that leadership role. In the third interview, participants were asked to share their aspirations for sustainability leadership, the skills they hope to still acquire, and the impact they hope to make (see Appendix A for interview protocols). Seidman (2014) wrote:

> The combination of exploring the past to clarify the events that led participants to where they are now, and describing the concrete details of their present experience, establishes conditions for reflecting upon what they are now doing in their lives. (p. 22)
This study leveraged the three-interview model with five participants who had been recognized for their sustainability leadership in higher education to better understand the why and how of their advocacy.

**Analytic Framework and Preliminary Data Analysis Procedures**

Interview transcription was completed via a professional service after each interview and the transcripts were member checked by participants after each interview. Interview transcripts were then coded in three stages: mindset, skillset and open. The first phase employed codes, as shown in Figure 1, derived from the contrasting mindsets suggested by Schein (2015), in order to identify participants’ mindsets and motivations: the “why” behind sustainability leadership. A second phase of analysis employed codes, as shown in Figure 2, that were derived from the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). The cluster of skills identified by these studies served as a lens for assessing their application in the lived experiences of the participants. As a final step, open coding captured emerging themes regarding student leader motivation, action, and impact. Cross-case analysis was then used to identify which themes were consistent across all participants. By drilling down to the why and how of student sustainability leadership and using an inductive approach to align mindsets and skills with components of current leadership models, a new model, one particular to the leadership needs and demands of both sustainability and higher education, emerged.

**Trustworthiness and Methodological Limitations**

In order to be trustworthy, a study should be conducted according to norms for acceptable and systemic research practices and also follow the procedures for human
subjects research (Rossman & Rallis, 2017, p. 51). As shown in the literature review, the study's central questions were significant to a growing number of institutions that have signed the Talloires Declaration. The 2015 ratification of the Paris Climate Accords further increased the demand for sustainability literate leaders in all areas of society. Understanding why and how higher education students become leaders for sustainability on campus can help shape the policies and programs needed to fulfill these institutional responsibilities.

The sample size for the comparative case study was small, but it allowed for the development of thick description from which the researcher could interpret themes. This approach is also consistent with the descriptive interpretive paradigm. Potential users for the study's findings will be able to consider the context and understand whether the findings could and should apply to their own settings. Finally, the researcher employed member checks on interview transcripts with primary interview participants, allowing participants to elaborate, correct, or extend emerging findings.

Finally, the researcher acknowledges the importance of the sustainable development paradigm in her professional and personal life. She holds a deep-seated belief, based on her own lived experience, that sustainable development is the key to addressing social, economic, and environmental problems locally and globally. As an educator, she also believes that sustainability studies can be a unifying, cross-disciplinary theme that promote high impact project- and place-based learning practices. This could imply bias in developing the study methodology and research questions. The researcher controlled for bias by establishing a community of practice in which she prototyped data collection instruments and received feedback on emerging themes and findings.
Ethical Considerations

Because the researcher chose a paradigm that relies heavily on human interactions to gather data, she remained focused on the best interests of the participants in all ethical decisions. For example, in developing the mutual respect needed to engage in a three-phase interview process with participants, the researcher needed to be as transparent as possible regarding the procedure for data collection and use. While participants might have wished to use their names as part of the study, viewing their participation as a way to elevate and celebrate their advocacy and leadership, it was important to consider that sustainability issues exist in a political environment. Because we cannot predict how participants’ beliefs and roles may evolve, it was determined to be best to keep identities anonymous to avoid any harm to future personal and professional aspirations.

Timeline

This study was conducted over the course of six months. In summer 2018, potential study participants were identified and contacted. Consent was confirmed in late summer 2018. Participant interviews were conducted in August and September 2018. In October 2018, study participants’ transcripts underwent an initial analysis and follow-up questions were submitted and answered via email. Data analysis was synthesized from November 2018 onwards to identify and confirm emerging themes and to align with components of leadership models. While ambitious, this timeline allowed the capture of data during the school year, which was key to accessing participants.
This study sought to answer three central research questions: What motivates students to become sustainability leaders in higher education settings? How do student sustainability leaders describe their role and effectiveness as leaders, in collaboration with or comparison to university personnel responsible for moving the institution's goals of sustainability forward? What leadership qualities and skills have student sustainability leaders used to transform complex higher education cultures?

This study used criterion sampling of high-impact student sustainability leaders through collaboration with two national organizations: American Association for Sustainability in Higher Education (AASHE) and Second Nature. Both organizations train and recognize excellence in student sustainability leadership. The initial field of possible candidates included those who had won AASHE and Second Nature leadership awards or been engaged with award winning projects since 2015. Several possible participants were identified; how well the potential sample reflected engagement with the three pillars of sustainability – economic, social, and environmental – was used to narrow the field. Finally, site was considered through criterion sampling as well, with the hope that the five study participants could be drawn from higher education settings that offered contrasting environments in which students were expressing sustainability leadership.

The resulting sample included three women and two men, ranging from current final-year students to those who had graduated two years prior. The sample reflected participation in all three pillars of sustainability. The sample also reflected a variety of higher education environments, from community college to small liberal arts college to large research universities. Figure 3 provides brief profiles of each participant.
Seidman’s (2014) three-interview model was used to collect data. This allowed participants to reflect upon and make meaning of past experiences, placing them in context with their own lives. Interview transcription was completed via a professional service after each interview and the transcripts were member checked by participants. Interview transcripts were coded in three stages: mindset, skillset and open. The first phase employed codes derived from the contrasting mindsets defined by Schein (2015), as detailed in Figure 1, in order to identify participants’ mindsets. These codes helped address the motivations, the “why” behind sustainability leadership. A second phase of analysis employed codes from the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015), as detailed in Figure 2. The cluster of skills identified by these studies served as a lens by which to assess their application in the lived experiences of the participants. As a final step, open coding captured emerging themes.
Using the participants’ reflections on their own lived experiences, the five case studies described the context and environment in which participants took leadership roles, detailed the sustainability initiatives the participants undertook, profiled their individual approaches to leadership, and outlined their goals for future sustainability leadership development. While the sample was relatively small, Seidman’s (2014) three-interview model created thick descriptions of lived experiences from which to draw data. Case study summaries follow; full case studies are available in Appendixes D-H.

**Case Study Summaries**

**Sarah**

Sarah was a 24-year old second-year law student at a large Southern land grant university. The university had 28,000 students, 23,000 of them undergraduates. Sarah graduated from the same university in 2016 with a B.A. in sociology. The university had an Office of Sustainability that managed on-campus initiatives. It offered an undergraduate sustainability major and minor, a certificate in sustainability science, and a Ph.D. program that focused on sustainability data and energy. Sarah was recognized by Second Nature for her work to establish a food pantry that served students and members of the university community, a project that outlived her graduation and was still a key part of the university’s sustainability portfolio. She was also a student leader in the campaign for university fossil fuel divestment.

The interconnectivity and interdependence of human and nonhuman systems was a theme that resonated throughout Sarah’s recalled experience. Sarah’s work with coal mining communities during her university’s divestment campaign helped frame that point of view. Sarah expressed a belief that resource mismanagement has left these
communities polluted and lacking the infrastructure to diversify their economies and rise out of poverty. She perceived a deep connection between human health, including social and economic health, and environmental health.

Sarah did not place a strong emphasis on the biosphere as the central or more heavily weighted concern among those systems. She did point out, however, that natural resource use was of vital concern to her as a leader. This sharply contrasted with an anthropocentric mindset that places human systems at the center of decision making.

Sarah began her sustainability leadership journey in high school. She focused on the biosphere and nonhuman systems and was deeply concerned about waste and the cruelty of large-scale animal agriculture. This understanding of nonhuman systems compelled her to become a vegetarian and reduce her consumption and waste through recycling and reuse. Sarah did not explicitly link nature to a spiritual role in her life - she did not express, as Schein (2015) suggested, that nature fed her soul. However, she did contradict Schein's (2015) anthropocentric mindset component that nature is merely a tool for human advancement.

In her reflection on her role as a student sustainability leader, Sarah demonstrated many of the skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Sarah’s development of the food pantry demonstrated the engagement of stakeholders and the building of teams from across sectors of the university community. Sarah said, “Nothing we do as individuals is going to be as powerful as if we all do it together.” Sarah successfully engaged student leaders from campus ministry and the university’s LGBTQ communities, as well as members of the university’s administration, to create institutional support for the project. Sarah indicated
that the fossil fuel divestment campaign taught her the importance of identifying and addressing stakeholder needs. She learned to frame her argument for divestment based on what each stakeholder valued. When speaking with the university chancellor, she framed her argument in terms of competition: the university was falling behind peer schools that were moving towards divestment. When speaking with students, Sarah framed the argument differently, arguing from a moral stance about the destruction of the planet and the impact on communities, an argument that resonated with that audience.

Sarah’s ability to empathize with stakeholders, as well as her ability to reflect on her own journey as a sustainability practitioner and leader and the role her personality, education, and community have played in her evolution, demonstrated a high level of emotional IQ.

As a leader, Sarah engaged in complex problem solving, particularly during the fossil fuel campaign and the development of the food pantry. Both projects were tangles of stakeholders, existing policy, and unmet needs. Sarah used communication, research, and teambuilding skills to tackle these challenges. Sarah directly challenged the status quo as a first-year student, leading an initiative supported by students, staff, and faculty to compel the university to divest from long-standing fossil fuel investments. Even when she had to walk away from the fossil fuel campaign, it was a calculated decision of where to best deploy her leadership assets rather than an emotional one.

Sarah spoke to the importance of a student leader communicating an inspiring message and demonstrating the integrity of a system mindset. She reflected that sustainability work can be daunting and overwhelming, but that storytelling can help motivate and unite teams behind the work. Further, the lifestyle choices she made allowed her to lead by example. Finally, Sarah emphasized the role that mentors and
mentoring have played in her development as a leader. Her own mentor impacted her evolution as a communicator and Sarah actively mentored emerging student leaders.

**Tom**

Tom was a 36-year-old returning student at a community college that annually served 73,000 full- and part-time students on four urban and suburban campuses in the Pacific Northwest. The college’s mission included language that focused on sustainability, it had a dedicated office for sustainability, and it had several sustainability-focused certificate and degree programs. In 2018, the community college was named by the AASHE Sustainable Campus Index as the top associate’s college in the United States. The college’s sustainability director nominated Tom for this study as a student who was key to the institution’s sustainability success. Tom anticipated graduating in 2019 with an associate’s degree in communications. He was the college’s environmental justice coordinator, an ambassador for a national campaign to promote tap over bottled water, and a representative to local sustainability consortia.

Throughout his reflection on his experience as a student sustainability leader, Tom demonstrated a systems mindset. The interconnectivity and interdependence of systems was a core belief underpinning Tom’s leadership. Tom expressed his belief that the disconnect between humans and natural systems has led to challenges with pollution mitigation, food insecurity, housing insecurity, and environmental justice. He suggested that reconnecting with natural systems and explicitly identifying as part of those systems is key to sustainability success. Tom placed the biosphere at the center of decision making, but as a result of his belief in the interconnectivity of all systems did not separate
human concerns from ecological concerns. In placing the biosphere at the center, Tom asserted that we are effectively placing ourselves at the center as well.

Tom did not identify specific coursework or discipline-based knowledge sets (e.g., biology or environmental science) on which he based his understanding of nonhuman systems, but his deep identification with nonhuman systems implied how he made decisions and took action as a sustainability leader. On several occasions, Tom referred to a spiritual connection to nature, particularly through his practice of Buddhist meditation. While he did not explicitly link his spiritual connection with nature to his motivation to lead for sustainability, that relationship appeared to be central to his daily life.

Tom also demonstrated the cluster of skills previously identified as central to sustainability leadership. Tom expressed that his leadership practice was still evolving and often seemed uncomfortable identifying himself as a leader. He was quick to acknowledge his belief that his privilege as a White man had offered him opportunities to lead that may not have been available to others. As a result, Tom placed a high value on building teams of leaders. Tom also expressed a belief that a diversity of ideas is crucial to developing truly innovative solutions to sustainability’s wicked problems. In order to build these multileader teams, Tom identified and respected stakeholder needs. He credited his humility, humor, ability to share stories, and commitment to equity for his ability to build trust with potential stakeholders.

Tom’s examination of his own story demonstrated a high level of emotional IQ. His self-awareness of his social privilege as a White man allowed him to leverage that privilege and offer leadership opportunities to others. By building coalitions of student
leaders who were addressing a variety of social concerns, Tom elevated the voices of
groups that are often underrepresented in sustainability circles. This strategy was helpful
when confronting complex problems. By building a coalition co-led by student
government, Tom and the team secured long-delayed funding and permission to build a
learning garden on campus, navigating a complex system of grant applications and
negotiations as a unified whole.

Tom had a long history of challenging the status quo. In his teen years he
rebelled against the anthropocentric philosophy he found resonating in his school’s
curriculum. He also became a vegan, mystifying his family and friends. This rebellious
history is the foundation from which Tom challenged what he believed to be the greatest
impediment to sustainability: capitalism. Because he identified sustainability success as
not just standing apart from but also in opposition to current social and economic
systems, he was always challenging the status quo.

As a communications student, Tom placed a high value on an inspiring message
and demonstrating the integrity of the systems mindset. Tom was deliberate in crafting
an inclusive message that invited all stakeholders to the sustainability table. He shared a
desire to not only solve problems, but to also elevate new leaders to new roles. Tom was
careful to walk the walk as he talked the talk. His personal choices to be a vegan and to
simplify his life through limiting consumption demonstrated a commitment to
sustainability that extended beyond his work at the college.

It is important to highlight Tom’s emphasis on the intersectionality of human
systems within a sustainability framework. Tom expressed that sustainability justice
cannot be separated from social justice concerns. Tom found it morally imperative to
give the platform to others and understand their viewpoints; this was not just a tool to build stakeholder engagement. This intersection within human systems reflected Tom’s larger belief in the intersection of all systems, human and natural.

Jennifer

Jennifer, 23, a biology major, graduated in 2017 from a Carnegie doctoral/research university in the South that served more than 27,000 students. The university had a center for sustainability that oversaw sustainability curriculum, including an undergraduate sustainability concentration and a Sustainability Practicum course. The center also offered public education and engagement programs. The university was recognized by Second Nature’s 2017 Climate Leadership Awards with an Honorable Mention. The Center for Sustainability’s director nominated Jennifer for this study as a student leader who contributed to the university’s recognition. Jennifer managed the campus garden and led education and outreach initiatives that supported sustainable practices on campus and in the community. In January 2019, she began a two-year commitment to the Peace Corps in Ghana as a sustainable agricultural consultant.

Jennifer demonstrated the elements of a systems mindset throughout her reflection. Jennifer identified the intersection between social and economic systems and natural systems. Through her leadership of the campus garden, as well as her enthusiasm for her role in the Peace Corps, Jennifer demonstrated an understanding that the decisions we make as humans have an impact on the environment not only in the present but over time. Jennifer expressed a belief that humanity’s disconnect from the environment allows us to place our own needs at the center of decision making. Jennifer employed a decision-making framework that placed human and nonhuman system needs on equal
footing. This framework stemmed from Jennifer’s understanding of the interdependence of systems.

Jennifer’s understanding of nonhuman systems began with her first foray into gardening in her own backyard while in high school. She pursued her interest as a biology major in college, exploring small-scale organic agriculture and large-scale commercial agriculture and their impacts on related systems, including human health. She put her knowledge into practice as the manager of the campus garden. While Jennifer did not explicitly express a spiritual connection to nature, she attributed emotion and perception to nature. She recalled feeling as if nature was speaking directly to her, calling her to work in the campus garden. Of her ambition to be an educator, Jennifer said that she was driven to help others develop the bond she felt with nature.

Jennifer’s reflection on her leadership practice referenced many of the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Jennifer acknowledged that building teams and engaging stakeholders was not only key to her leadership practice, but a skill at which she has had to work. Her initial efforts to build a team to support the campus garden failed, but Jennifer persevered and requested additional training. As a result, her second year as manager produced not only an abundant harvest, but a unified team of gardeners. Jennifer described approaching team building through listening to stakeholder needs and respecting their lived experience. She was quick to acknowledge that her experience may be unique among those with whom she works. By being empathetic to their experiences, she identified common values and built the trust needed for a successful team.
Throughout her reflection, Jennifer exhibited high emotional IQ. She assessed her own strengths and weaknesses as a leader. She pointed to humility as playing a key role in her success. By purposefully embracing the role of facilitator rather than expert, she positioned herself to learn alongside her teammates rather than assume authority over them. This led to a welcoming environment in which all could be successful.

Jennifer engaged in complex problem solving as an entrepreneur. While still in college she began developing a line of organic beauty products. She recalled that her research skills were key to working through obstacles to design a marketable, sustainable product line. Making informed and value-based decisions about product ingredients, packaging, and price points ultimately informed her bottom line.

Jennifer expressed comfort with challenging the status quo. Her university was largely supportive of her work and personal sustainability choices, but she found resistance among her family and friends. Her choice to be a vegetarian stood in stark contrast to her community’s food culture. Even her choice to join the Peace Corps was met with resistance. However, Jennifer found strength in her values and won over her family and friends; her mother even became a vegan. Jennifer found that an inspiring message and demonstrating the integrity of a systems mindset helped convince members of her communities to make sustainable choices. She pointed to her own mentor as someone who not only shared an inspiring message, but who also led by example, jumping into dumpsters to retrieve misplaced recyclables. Jennifer expressed hope that through her own teaching she could share positive messages and set a positive example.

Mentoring and the role of experiential and project-based learning also featured in Jennifer’s reflection. Her mentor played a key role in Jennifer’s evolution as a leader.
As a result, Jennifer took the opportunity to mentor emerging student leaders to carry on her work when she had graduated. Jennifer clearly expressed the value of experiential learning in her evolution as a leader. By making mistakes and even failing, she earned valuable lessons and grew. The importance of experiential learning was key to her decision to continue her sustainability work as a Peace Corps volunteer.

Molly

Molly, 22, graduated in 2018 from a private liberal arts college in the south Atlantic, where she majored in sustainability science. Her college located most of its sustainability initiatives at a centralized sustainability center that supported teaching, learning, and applied research and offered students the opportunity to engage through a fellows program and a community conservation program. The college was recognized by Second Nature’s Climate Leadership awards in 2017. Molly was nominated by the sustainability center’s director for this study as a student who played a key role in the college’s success. Molly held a fellowship at the center and focused on transportation initiatives for both the college and local community. She was employed at the college as a coordinator and quantitative analyst.

Throughout her reflection, Molly expressed elements of the systems mindset. Her definition of sustainability highlighted the interconnectivity of human, social, and environmental needs: “When I think of sustainability, I think about the intersection of meeting people’s needs and meeting environmental needs to create a flourishing world.” Molly admitted that she initially approached sustainability through an environmental lens, but that her major program and her work on transportation issues deepened her sense of the interconnectivity and interdependence of systems. Molly expressed that her
decision-making framework was informed by the image of environmental health embracing human health. The biosphere is not at the center, but rather encompasses all other systems and must therefore be of pre-eminent concern.

Molly’s understanding of nonhuman systems was implied throughout her lived experience as a sustainability leader. While successfully developing transportation policies for the college and the community, she took into account how the human system impacts natural systems. Molly’s understanding of and connection with natural systems began in childhood. She attributed her personal connection to nature to her great-grandmother, who fed herself from her own garden, composted her waste, and even took Molly geode hunting. While Molly’s connection to nature was not explicitly spiritual, it was clearly personal.

Molly also demonstrated the sustainability leadership skills cluster suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Her experience leading a capstone project to develop a college transportation plan required her to not only build a team of students, but to also engage the community during data collection and evaluation. Identifying stakeholder needs during this process was key to its success. The range of stakeholders was broad, from campus police and facilities to students and staff to the public bus system. In order to get the best input for the project, Molly had to listen to and build trust with each stakeholder. While Molly acknowledged that not all stakeholders’ needs can ultimately be met in every project, it was vital to the process that they all feel heard.

In reflecting on her strengths and weaknesses as a leader, Molly demonstrated high emotional IQ. Molly described herself as naturally shy, making stakeholder
engagement and public presentation of her work a challenge. However, she took steps through coursework and internships to overcome this challenge and reflected that she had made progress in building her confidence. Molly also demonstrated through her lived experience an ability to tackle complex problems. Her role as the student coordinator of the college’s bike rental program may seem simple, but it involved many moving and changing parts. Her understanding of her audience allowed her to increase participation; her desire to optimize the program led her to research best practices at other colleges and universities. Ultimately, her work on the program helped address a larger and even more complex issue: the number of students driving to and from and on campus.

Molly described having to confront resistance from both college and community cultures in her work as a sustainability leader; however, she was unafraid to challenge the status quo. Armed with data, Molly began an effort to connect the city bus system more directly and frequently with the college. She found resistance from the administration and underlying cultural biases about public transportation. While she was able to demonstrate the potential positive impact of increasing service between the college and city, she was unable to make it happen. While she did not win the battle, she was unafraid of taking on the fight.

Molly spoke to a leader’s need to communicate an inspiring mission and lead by example. She argued that by having a vision and acting upon it, sustainability leaders can inspire others to follow. Molly made choices that were consistent with a systems mindset, such as shopping locally, bike commuting, and using public transportation.

It is important to note that Molly often spoke of sustainability as a human-centered challenge. While she considered the environment to be the pre-eminent
concern, she approached her work through a human lens. By creating healthy communities, Molly asserted that we can halt or even reverse environmental degradation. In her work, she sought to alter the human behaviors that are detrimental to sustainability.

Molly also spoke of the role of project-based learning in her evolution as a leader. While she enjoyed sustainability-relevant coursework in her major, she highlighted internships and capstone projects as being particularly impactful. She recalled that putting her work into action inspired her to deepen her learning.

James

James was a senior at private Jesuit university in a Midwest urban setting. He expected to graduate in 2019 with a degree in environmental science. The university’s Institute for Environmental Sustainability supported environmental approaches to sustainability through degree programs, on campus initiatives, and community engagement. The university was recognized by Second Nature’s Climate Leadership awards in 2017. James was nominated by the director of the Institute for Environmental Sustainability as a participant for his key role in the university’s success. James was copresident of the Student Environmental Alliance, a student sustainability advocacy group, and led several key initiatives, including institutional fossil fuel divestment and the installation of solar arrays. He had completed sustainability relevant internships in Chicago and Southeast Asia as well as a semester at the Stockholm Resilience Centre in Sweden.

Throughout his reflection, James explicitly referenced elements of the systems mindset. He repeatedly spoke of the interconnectivity and interdependence of systems. He asserted that isolated systems do not exist and that humanity’s anthropocentric
attempts to define independent systems leads to flawed decision making. James expressed the belief that environmental systems naturally set limits on human consumption and that these limits must inform our human systems, such as economies. This limit-setting role does not place the biosphere at the center of James’s decision-making framework, but it certainly places it in a dominant position relative to human systems.

James’s lived experience as an environmental science major implied an understanding of nonhuman systems. Through his advocacy for green energy initiatives at his university, he demonstrated an understanding of how human fossil fuel consumption negatively impacted both human and nonhuman systems. James did not explicitly express the degree of his knowledge or how that knowledge was acquired.

James expressed a direct connection between his sustainability leadership work and his personal faith. He believed that his Catholicism and his Catholic education have instilled in him a view of nature that runs counter to what he described as the very “American” idea that nature can be owned. He approached his sustainability work through a social and environmental justice lens, believing it was his duty to address the needs of those disproportionately impacted by poor decisions regarding the environment.

Through the retelling of his lived experiences, James demonstrated the cluster of sustainability skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). James viewed sustainability as a challenge that impacts all social and economic groups and sought partnerships with student affinity groups. Building teams of diverse stakeholders helped James address what he saw as inequitable
representation in the environmental and sustainability movements. He also actively collaborated with university leadership, often overcoming opposition through the power of trusting relationships. James credited his use of respectful inquiry with helping him identify stakeholder needs, discover shared values and potential synergies, and resolve conflict.

James demonstrated high emotional IQ, particularly in acknowledging his position within his community and its leadership hierarchy. He acknowledged that as a White, straight male, he had opportunities to learn and lead that may not have been available to others. He identified his strengths and weaknesses as a leader, as well as how he learned from success and failure. In challenging the status quo, James acknowledged he had little tolerance for obfuscation, even from university leadership. He commented that his tendency to ask direct questions may work for some stakeholders and not for others, but he was unafraid to challenge stakeholders on the facts, secure in his research and data. James had navigated several complex initiatives by using these skills to build coalitions, overcome obstacles, and make strategic adjustments to achieve success.

James viewed the communication of an inspiring and inclusive mission as key to his leadership role. He had been inspired by leaders at his university and by leaders he met through his internships. He used communication as a key tool in his practice. James also spoke of the importance of leading by example by making choices that were consistent with the systems mindset. He was a vegetarian and had intentionally reduced his consumption of goods and his carbon footprint. However, he pointed out that his
individual choices alone would not be enough to create the sustainable world he envisioned.

James repeatedly spoke of the intersectionality of sustainability work. Informed by his faith, he saw the intersection of human systems under the sustainability umbrella as an opportunity to achieve social and economic justice for underserved and underrepresented populations. James also spoke of the importance of experiential learning in his development as a student leader. Through his advocacy work as well as several internships, James had the opportunity to fail. While he had learned from his successes, he asserted that he learned best “by failing. Trying and failing.”

Cross-Case Analysis

Cross-case analysis considered how the collected data aligned with the sustainability leadership and skill set codes. It also considered what common themes, if any, were revealed through the open coding process. Cross-case analysis demonstrated that some codes were more explicitly or commonly expressed across cases than others.

Systems Mindset

Cross-case analysis revealed that two of the four elements of the systems mindset were more explicitly expressed by all five participants than the other two elements. Figure 4 summarizes the results of the first level of cross-case analysis: participants’ expression of the systems mindset.
Interconnectivity & Interdependence

- All 5 express the interconnectivity & interdependence of human and non-human systems.

Biosphere at Center

- 3 participants speak to the importance of placing the biosphere at the center of decision making
- 1 participant speaks against an anthropocentric approach to decision making.

Understanding on Non-human systems

- Understanding of non-human systems is strongly implied by the experiences of all 5 participants as advocates.

Spiritual View of Nature

- 2 participants express a faith-based/spiritual connection
- 2 participants express a personal connection.

Figure 4. Participants’ expression of systems mindset.

**Interconnectivity and interdependence of systems.** All five participants explicitly referred to the interconnectivity of systems while reflecting on their lived experiences as sustainability leaders. Specifically, the participants expressed the interconnectivity of human systems and needs with nonhuman or environmental systems and needs. In defining sustainability, Tom reflected:

I think my feelings are is that, in order to truly gain a sustainability path forward, we need to really remember the connectivity and interconnectedness, that we are a part of all the systems. And so it’s really a systems view of thinking that I’m
interested in, which is a now more popular subject and that’s what I’m kind of pursuing.

Tom’s use of “interconnectivity” and “systems” directly aligned with Schein’s (2015) mindset codes.

Sarah also explicitly spoke of the interconnectivity of systems. She commented that her major, sociology, allowed her to approach sustainability with a lens focused on interconnectivity. Of her definition of sustainability, Sarah said, “It’s sort of evolved into a more macro level perspective. And I was a sociology student in undergrad, so my four years in undergrad really gave me an opportunity to think about how everything is interconnected.” Sarah’s approach to sustainability reflected this academic path. She approached sustainability challenges through the human lens, understanding and communicating the impacts that environmental decisions have and continue to have on human systems and vice versa. Her leadership focused on helping people and communities better understand the interconnectivity of systems so sustainable decisions can be made.

Molly had a similar approach to her sustainability leadership practice, approaching sustainability challenges from a human perspective but emphasizing that human and environmental needs are deeply intertwined: “When I think of sustainability, I think about the intersection of meeting people's needs meeting environmental needs to create a flourishing world.” The interconnectivity of human and environmental needs is the nexus for sustainable decision making. According to Molly, only when one considers the needs of both systems can one move towards healthy and thriving human and environmental systems.
Jennifer spoke of broadening her definition of sustainability beyond purely environmental concerns to be inclusive of human relationships and systems:

Well, then I was just looking at sustainability as, "Oh, you recycle. You grow some plants. You reduce reuse, recycle." I thought that was sustainability, but sustainability is way bigger than that because you have to be able to sustain yourself, you have to be able to sustain relationships, you have to be able to sustain all of those things... It's bigger than just those few things that I was initially introduced to.

While Jennifer did not explicitly use the word interconnectivity, her reflection speaks to a broad web of shared concerns that goes beyond the environment to include how we personally sustain ourselves in the world and how we sustain our human relationships. Sustainability permeated all aspects of Jennifer's sustainability practice and leadership.

Finally, James directly spoke of the interconnectivity of systems: “Isolated systems just don’t exist. But developing this sort of systems thinking, and understanding that social and ecological systems are all...that’s what the systems are that we live in and work in.” James believed that it was impossible for systems to exist in isolation, whether we recognize that interconnectivity or not. He focused much of his leadership on educating his community about interconnectivity so decisions could be made with that lens, acknowledging and honoring that interconnectivity.

Three participants spoke directly of the interdependence of systems. Interdependence can be implied by interconnectivity, but these participants explicitly referred to how decisions made in one system have a direct impact on the health of all other systems. James reflected:
There’s no human who can live independently of the natural world, or earth, right? From just eating food to drinking water, to breathing air, right? And that kind of, trying to chunk things into...this is economy over here, this is a society over here. Or this is the environment over there in that park, doesn’t at all reflect the reality of our world, which is interconnected.

James spoke of the fallacy of human systems being independent of natural systems. By viewing systems as independent, we deny the interconnected reality that should guide our decision making.

Molly also spoke of the interdependence of systems. Even though Molly admitted that her approach to sustainability practice and leadership had become more “people centric,” she recognized that decisions in one system have a direct impact on all others:

I think [sustainability] has become more people centric for me, but not disregarding the more environmental side of it, but I think it goes hand in hand, and people have such a big impact on the environment, and so creating healthy communities is one way to help with environmental degradation.

Molly viewed the pursuit of healthy human communities as a pathway to thriving environmental systems. In making decisions regarding human systems, we must consider impacts on the environment because, ultimately, what is good for human health will be good for environmental health.

Tom also spoke of the interdependence of systems, framing it in terms of justice. He spoke of humans as the only species that were actively destroying their home - their
environment. Ultimately, that path is unsustainable as we are dependent on the environmental systems that we are degrading:

Sustainability is everything, too, we’ve put this word that can mean so many things, ’cause I was even thinking about the separation of social justice and we’re calling it environmental justice, but it could be sustainable justice. It’s just it’s like, if we’re not sustaining, I don’t know, the longevity of the planet, then what are we doing? All the other plants and animals have appeared to not be destroying their home, except for us, so I just want that to reverse. That’s sustainability to me, is like, “Can we just stop? Can we stop? Can we move in the other direction?”

Tom’s sustainability leadership emphasized the need to acknowledge the interdependence of systems, to remove humans from the top of a false systems hierarchy and instead accept and embrace our place in an interconnected and interdependent world. If we can change that anthropocentric mindset, we may be able to move in the direction Tom envisioned.

Finally, two participants spoke of the interconnectivity and interdependence of systems across time. Our decisions do not live only in the present, so we must consider both past and future when making sustainability decisions. Sarah reflected:

I think sustainability is about so much more than just recycling or using reusable products. It’s really a lifestyle in which individuals and larger entities, businesses, communities, consider the impacts of their own existence, and sustenance, on future generations and not only future generations, but other groups of people in the present.
Not only did Sarah highlight the longitudinal impact of human decisions on all systems, but she also pointed out that decisions made by one human group will impact others in the present. As a sustainability leader, Sarah considered these longitudinal and intersectional impacts.

Jennifer also explicitly demonstrated a concern for the future as part of her leadership practice: “We need to practice the things that we do in a way that it can continue from generations after us. It can still be continued and it’s not detrimental to the future.” Jennifer encouraged decisions that not only have sustainable outcomes, but also are sustainable in and of themselves. In other words, a sustainable solution that can only be applied in the present, one that cannot continue to have a positive impact for future generations, is not taking into the account the full range of sustainability practices.

While reflecting on their lived experiences as sustainability leaders, all five participants explicitly referred to the interconnectivity of systems. Specifically, the participants expressed the interconnectivity of human systems and needs with nonhuman or environmental systems and needs. In addition, several participants spoke of interconnectivity across time, balancing the needs of human and nonhuman systems in the present with the needs of human and nonhuman systems in the future.

**Biosphere at center.** Four participants spoke of the biosphere as being a preeminent concern or at the center of decision making. Tom spoke of the need for humans to live within the present and future limits of the biosphere:

So sustainability, yes, living within the means of the biosphere in an ecologically mindful way so that we aren’t using more than the Earth, our nature and natural
systems can produce, and doing so in a way that fosters healthy reproduction in all aspects of land, water, air, etc., while not becoming a virus on the planet and consuming all things.

Tom’s reflection on sustainability included a focus on nature, its systems and resources, as a primary concern. He used strong language, “virus,” to indicate what human activity can look like if one does not approach decisions by prioritizing environmental concerns. “Living within the means of the biosphere” guided Tom’s approach to sustainability leadership and practice.

James also spoke of the need to consider the limits of the natural world and its resources when approaching sustainability work:

So, I think a kind of more aggressive definition, gives more respect to what it means to have planetary boundaries with tipping scales and limits, is really important. If that’s not kind of front and center, it’s very easy for sustainability to be co-optive, right?”

James feared that without the environment being of primary concern, initiatives or efforts labeled as “sustainable” could be co-opted for other purposes such as marketing or political gain. His leadership was informed by a focus on the environment as a preeminent concern.

Jennifer expressed a similar focus on the environment and biosphere, but not as explicitly as James and Tom. Rather, her comments contrasted with the anthropocentric position that the human species is preeminent. “The natural world is like something that’s far away that doesn’t affect us, but that’s the opposite. And without it there, we would be in trouble.” Jennifer reflected that humans’ disconnect from the environment is
an obstacle to making sustainable decisions. Jennifer’s leadership was informed by a desire to educate her community in a way that connected it to the natural world so that then the natural world could become a central concern in decision making.

Similarly, Sarah spoke to the needs of the biosphere by prioritizing the responsible use of natural resources. She did not suggest that humans not use natural resources, but rather that we take into consideration the limits of the biosphere and its ability to produce those resources over time: “And saying if we’re gonna fight for sustainability we want to fight for responsible uses of resources.” Her work in Appalachia, deep in coal country, reflected this point of view. She observed the damage done to not only the environment but also to human communities by exploitative extraction practices and would reframe decision making to place environmental concerns at least on par with human concerns. This point of view contrasts with Schein’s (2015) definition of the anthropocentric mindset, which places only human concerns at the center.

Three participants spoke of prioritizing the needs of the biosphere as central to their approach to sustainability leadership. While not explicitly speaking of the centrality of biosphere concerns, one participant spoke against the idea that human concerns must be the priority in decision making, standing in direct opposition to the anthropocentric mindset.

**Understanding of nonhuman systems.** While each participant spoke at least indirectly of an understanding of nonhuman systems, such an understanding was strongly implied by their lived experiences as sustainability leaders. In effect, their successful advocacy for and implementation of sustainability initiatives on their campuses
demanded at least a basic understanding of nonhuman systems. Sarah demonstrated an understanding of nonhuman systems, particularly in the personal sustainability choices she had made. Inspired by a high school biology teacher, Sarah conducted her own extensive research on resource management, the impacts of waste, and the impacts of large-scale agriculture. As a result, she became a committed vegetarian, actively recycled, and engaged in a low-consumption lifestyle.

I became a vegetarian when I was a freshman in high school because [my teacher] showed a video about animal agriculture and I was very upset by that and did a lot of research. I went home and I read and read about not only about animals, but about the water pollution, and about how intensive animal agriculture and even plant agriculture is on resources. And I read about just various other ways that we waste.

While Sarah’s sustainability leadership practice came to embrace a balance of human and environmental concerns, she took great strides to educate herself about how nonhuman systems work and how human decisions and actions impact those systems.

Tom’s explicit focus on the interconnectivity and interdependence of systems required an understanding of nonhuman systems. “We’re all a part of this earth that is one living organism and the ecology of it is just one thing. That helps me try not to ruin it all.” The implication of this interconnectivity is that we must understand nonhuman systems because we are one and the same thing. While Tom did not identify specific coursework in biology or environmental science on which he based his understanding of nonhuman systems, his deep identification with nonhuman systems implied a level of understanding upon which he made decisions and took action as a sustainability leader.
As a biology major and gardener, Jennifer demonstrated knowledge and understanding of nonhuman systems. After experimenting with her own backyard garden in high school, Jennifer pursued a deeper understanding of nonhuman systems through her coursework. As a freshman, she took a course on environmental sustainability that she credited with opening her eyes to issues surrounding food, particularly large-scale commercial agriculture. As a result, she became a vegetarian and began managing the campus garden. She participated in an urban gardening bootcamp as part of her training for her role. Both in the classroom and in the extracurricular space, Jennifer demonstrated an acquired understanding of nonhuman systems that informed her sustainability leadership.

Like Tom, Molly implied an understanding of nonhuman systems through her acknowledgement of the interconnectivity and interdependence of systems. As a sustainability science major, her coursework included nonhuman systems topics such as environmental science and electives in biology. Further, in order to successfully develop the transportation and policy projects she completed, she considered how nonhuman systems interact with human systems and what impact each has on the other. However, she did not explicitly express the degree of that knowledge or how that knowledge might have been acquired.

James's lived experience as an environmental science major implied an understanding of nonhuman systems. In his work as a sustainability leader, particularly in his advocacy for green energy initiatives at his university, he demonstrated that he understood how human consumption of fossil fuels has negatively impacted both human
and nonhuman systems. However, he did not explicitly express the degree of that knowledge or how that specific discipline knowledge was acquired.

An understanding of nonhuman systems was strongly implied by the lived experiences of each participant. Each of the participants spoke at least indirectly of an understanding of nonhuman systems. However, it was their successful advocacy for and implementation of sustainability initiatives on their campuses that most clearly demonstrated at least a basic understanding of nonhuman systems.

**Spiritual and personal connection to nature.** Two participants spoke directly of a spiritual, religious, or faith connection to nature. James repeatedly referenced the connection between his Jesuit faith and practice and his sustainability work:

> My faith is a faith that does justice, and that’s what I fundamentally view as what faith is for me... The Jesuit approach really emphasizes social justice and working to build a better world... That’s my faith, and that’s what drives my view of where to spend time, energy, and effort and then also what it means to be human.

James saw his work as an extension of his faith, his larger worldview. And his work fed that faith so that he could persevere with his work when obstacles appeared.

Tom clearly expressed that his awareness of nature had been informed by his spiritual practice. He recalled beginning a meditation practice as a teenager that helped him better understand the interconnectivity of systems:

> And at that point I learned about the connectivity of all things and, growing up in the Midwest in a suburb of Minneapolis-Saint Paul I just realized that these big-box stores and all the things that were happening didn’t make sense. It didn’t make to me sense why there was Targets every five miles and all of these really
weird masses of mass production of these things that were... They didn't seem sustainable. I didn't know the word for it then, I was just like, “Why is there so many big things?”

Through meditation and developing a better understanding of how human and natural systems are interconnected, Tom began asking the larger questions that continued to drive his sustainability leadership practice. While he did not speak directly of how nature fed his soul, he demonstrated a connection to nature through a spiritual or religious path.

Two participants spoke of a personal connection to nature that informed their sustainability leadership. Jennifer spoke of nature calling her to do her work as a community gardener. When passing the campus’s community garden, she felt drawn to it as if it was saying, “Hey, come on over here.” In addition to giving nature a voice of its own in her reflection, Jennifer also stated that humanity’s disconnect from nature enables us to make destructive decisions that, in the end, go against even human best interests. She hoped to remedy that disconnect through her leadership:

Because I heard this saying that we’re like a tree without roots, people who don’t know their history or where they come from, and that includes agriculture. A lot of people and nature, a lot of people is disconnected from that, and we’re like trees without roots, just not connected to anything. I hope to, whatever it is that I do, I hope to help be a facilitator of that bond.

Jennifer believed that a personal connection with nature and natural systems will prevent us from making ill-informed decisions that do not take into account the short- and long-term impacts on our deeply interconnected systems.
Molly also expressed a personal connection to nature. Her great-grandmother was a mentoring figure in her life, inspiring her to live more closely with the environment around her. She had composted, grown her own food, and enjoyed spending time in the outdoors. Molly recalled, “We would do a lot of outdoor things. We’d go geode hunting in the nearby creek. Looking back now, I think, ‘Oh, I want to be more like Grandma.’” Molly’s personal connection to nature, which persisted today, was inspired by her relationship with her great-grandmother. This connection informed her work as a sustainability leader, as she saw herself and the human systems she navigated as intertwined with the natural systems around her.

Sarah did not speak explicitly to nature’s spiritual role in her life or to her personal connection to nature. However, she did contradict Schein’s (2015) anthropocentric mindset component that nature is merely a tool for human advancement, which contrasts with a spiritual role for nature:

We have so many resources and I mean, our institutions are just overflowing. In America especially we have such a capacity to do so much more good. And just this false reliance on constant growth, just exploiting productivity I don’t buy that it’s necessary. Especially when people are struggling and our resources are being depleted. And communities are suffering.

Sarah expressed sharp opposition to the anthropocentric idea that nature is merely a tool to advance human systems. While she did not, in her reflection, indicate that nature played a personal or spiritual role in her life, her opposition to this anthropocentric idea implied that she saw nature as more than a tool, but as a system of equal import.
Two participants referenced an explicitly spiritual or faith-based connection to nature; two participants spoke to a personal connection to nature that informed their leadership practice. One participant did not explicitly refer to a personal or spiritual connection to nature, but she did speak in opposition to the contrasting, anthropocentric belief that nature is merely a tool for human advancement.

**Sustainability Leadership Skills**

A second stage of cross case analysis – sustainability leadership skills – revealed that all five participants demonstrated each of the seven discrete skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Figure 5 summarizes relevant data for each of the seven skills.

- **Engaging Teams & Stakeholders**
  - All 5 speak to the need for diverse teams to tackle complex sustainability problems
  - All five speak to the role of leaders in building those teams.

- **Identifying Stakeholder Needs**
  - All 5 reflect that identifying stakeholder needs is key to building successful teams.
  - Listening/empathy/respect were key approaches to making stakeholders feel valued and heard/identify shared values.

- **Demonstrating High Emotional IQ**
  - All 5 exhibited self-awareness and an understanding of how they have grown as leaders and acquired skills.
  - An awareness of leadership role, potential impact, privilege, and position relative to their communities & society.
Challenging Status Quo
- All 5 participants have found themselves challenging the status quo in their families, communities or society.
- Commitment to the values and mindsets underpinning their work allowed them to persist.

Communication of an Inspiring Mission
- All 5 speak to the importance of this skill in the face of what can be daunting and even depressing work.
- An inspiring mission can help teams persist in the face of the enormity of the task at hand.

Integrity of Systems Mindset
- All 5 reflected that making and living sustainable choices is a valuable leadership tool.
- Leading by example helps builds trust and inspires others to follow.

Figure 5. Participants’ demonstration of sustainability leadership skills.

Engaging teams/stakeholders. All five participants spoke directly of the role of engaging teams and stakeholders in their work as sustainability leaders, placing emphasis on the power of diverse teams and of building trust. Regarding her work in her campus community, as well as in Appalachian communities, Sarah reflected:

Nothing we do as individuals is going to be as powerful as if we all do it together... One thing that is really important in being a leader in my community and in Appalachia I think in general is, because of the exploitation we’ve experienced we’re really wary of outsiders, and people coming in and saying, “Here's what I think you should do about this, and here’s what will help you get out of this struggle that you’re experiencing.” So I think leaders coming from
within the community and saying, "I’m hearing this is what you need, here’s how I can help support that," that’s really how I think change is gonna happen for us.

Sarah’s experience both as a member of her community and as a leader taught her that building trust was key to engaging stakeholders. A legacy of distrust of outsiders must be addressed through hearing the concerns of the community. Even better, homegrown leaders, like Sarah, can more easily build that trust.

Tom’s leadership practice also emphasized the engagement of teams. Tom’s strategy was to encourage all team members to develop as leaders. This strategy was informed by Tom’s belief that hierarchical leadership models are, in and of themselves, unsustainable because they center power and responsibility on individuals rather than on the group:

Leaders are everybody. Everybody is a leader, everybody has assets, and everybody has something really beautiful to offer. And that’s why the equity, inclusion, and the social justice work isn’t just about, “Oh, we all need to give each other respect!” Yes, of course we need to give each other respect, but when we leave the door open for everybody to walk through we’re going to be amazed at how many solutions are there and leaders are there in every one of us.

By engaging diverse teams and recognizing the leadership assets of each member, Tom argued that more innovative solutions would be created that address sustainability’s wicked problems.

Jennifer also learned the power of teams through her work as the manager of the campus garden. As she recalled, her initial efforts to build a community around the garden proved disappointing. Her end-of-semester harvest celebration was a self-
described failure. After getting some training at an urban gardening boot camp, she learned how to build the community the garden needed to thrive. “And then you know I built the community, I built the friendships. And if it was something I couldn’t answer, I would tell them I don’t know, but let’s find out together.” Rather than positioning herself as an authority or expert, Jennifer positioned herself as a guide, someone who could bring together teams to help solve problems and find answers. By creating an ethos of shared learning, she built a more effective team for the project.

Like Tom, Molly also reflected on building teams of diverse stakeholders in order to tackle complex challenges:

I think that’s going back to the idea of a leader is someone that we’re not all working in silos, but you’re bringing in everyone and you’re all from different places and backgrounds, and have different skill sets, but there’s some way to have it all connect.

In her work to create a campus transportation plan, Molly had to help coalesce a team for her capstone project, using complementary skill sets to address a complex task. In addition, Molly had to secure buy-in from a diverse group of stakeholders by working across the traditional higher education silos (disciplines, departments, etc.).

Like Tom, James also spoke of the engagement of teams and stakeholders as a way of elevating others to leadership roles. In his work as a sustainability leader, James aspired to not only lead successful teams, but to encourage team members to become leaders themselves: “So it’s to that readiness to support and build up others and through that listening and encouragement push others to be bold with their ideas and with their strengths, too.” By giving voice to all team members, James made them feel valued. In
addition, he created sustainability in the system by ensuring that new leaders would emerge in an environment – a higher education campus – that, by its nature, has rapid turnover among student leadership.

All five participants spoke explicitly of the power of diverse teams in sustainability work and the role of sustainability leaders in building those teams based on shared values and trust. Participants suggested that the complexity of sustainability challenges requires transdisciplinary teams and approaches.

**Identifying stakeholder needs.** All five participants reflected that identifying stakeholder needs was a skill they used in their sustainability leadership practice. In her work developing sustainability policies with Appalachian communities, Sarah shared that building trusting relationships with stakeholders was vital to her success:

I wasn’t sitting in Nashville researching and writing a bill and doing that, I was at the community meetings. I was at the table, you know, sharing in victories, and sharing in losses and concerns and worries, and having dinner with community members and asking about their families and really becoming a part of what was happening. So building that trust, and building a relationship where they can say, “Here’s what I need you to do or here’s a problem, do you have any suggestions? What do you think would be the best?” And then just really getting close to the people and keeping up that relationship.

By making herself available to stakeholders in a personal way and building trust, Sarah enabled and encouraged stakeholders to share their concerns and ask her for help and expertise. Rather than imposing leadership upon the community, Sarah allowed the
community to build a relationship with her as a person first. The community was then empowered to ask her for her guidance as a leader.

Tom expressed a motivation to broaden the awareness of sustainability concerns across sectors in his community by engaging stakeholders. By working with student groups that may not have an obvious interest in sustainability issues to plan activities and events, Tom increased awareness of environmental issues and made sustainability relevant to more students, staff, and faculty across campus.

Ideally our leaders are everybody because every mother and father is a leader and every janitor is a leader too and they’re keeping things afloat... But my goal was “How do we work with all the different groups, and how do we just bring sustainability and environmental awareness basically into every programming event moving forward?”

By engaging diverse stakeholders and helping them find relevant entry points to sustainability work, even if just by planning events that support more sustainable products such as compostable servingware and that create less waste through intentional recycling, Tom hoped to build a larger community of sustainability leaders.

Jennifer reflected that engaging stakeholders with respect for their values and experience was key to her practice. She recognized that she was speaking from a place of privilege as a college-educated woman and needed to honor others’ points of view on sustainability:

I definitely believe that you got to be careful because if you say try to bring it [sustainability] in the wrong way, you turn people off. You lose them from the conversation. And you also have to be willing to listen because had I not been
able to have, be privileged enough to go to college, I might not have been as sustainably driven as I am. A lot of people don't have that opportunity. So you have to listen to where they're coming from, what background they have. How can you talk to them about it without sounding or offending them? I think communication is everything.

Meeting stakeholders where they are and honoring their experience and values was key to building teams. Jennifer also demonstrated high emotional IQ in this reflection. Her awareness of her privilege and her ability to check that in favor of giving others voice was a key skill she used in engaging stakeholders.

Molly also reflected about actively seeking out stakeholders and engaging them with respect for their position and experience: “Meeting people where they are and listening to them is super important, and being willing to go out and try to find those people, not being passive.” Of leaders she hoped to emulate, she said:

I think someone that has a positive attitude and that’s a go-getter and really wants to take charge in bringing people together and collaborating, I think, really wanting it to be kind of, “Yes, I’m a leader but I want to hear all of your input, and all of you matter and there's value in each person,” I think is super important.

In her sustainability leadership practice, Molly sought input from stakeholders across sectors, even those who might stand in opposition to her point of view, in order to better understand the specific sustainability challenge and chart a path forward.

James employed active listening as he engaged stakeholders, asking probing questions to better understand their needs and concerns. James’s leadership practice involved identifying stakeholder needs through respectful inquiry:
Start by listening. And then, asking questions. I think, “How would you approach this challenge? Do you view this as a challenge? If not, why not? Why is this a non-issue for you?” So those sorts of questions. But yeah, and then just when hearing things come through that do ring with my view, holding up I heard you say this, that this is important for you. Or I heard you say that you value this or whatever. And using that as a way to show that we're not on opposing sides but we're on the same side.

By asking questions and reflecting back what he has heard, he recognized where values are shared and built connections. Like Jennifer, James demonstrated high emotional IQ in reflecting on this process. He must have a firm understanding of his own values in order to build these meaningful connections.

All five participants reflected that identifying stakeholder needs was key to building the teams needed to address complex sustainability challenges. Engaging stakeholders with respect and empathy allowed participants to identify shared values and needs and to make each stakeholder feel heard and valued.

**Demonstrating high emotional IQ.** All five participants demonstrated high emotional IQ through their reflections on their lived experiences as sustainability leaders. In particular, each exhibited self-awareness and an ability to understand how they have grown as leaders and acquired the skills they needed. Sarah reflected that her commitment to leadership required her to be more extroverted:

I think before I started in environmental work I was very shy, quiet, never thought I would be holding a megaphone, yelling about corruption, the destruction of our
planet, and I think that is an important skill, especially as an introverted person, as someone who gets exhausted from all of the social interaction and all of that. Even though she admitted that being outgoing took a toll on her, she understood that taking a megaphone in hand is a part of what she needed to do as a leader. A self-described introvert, she nevertheless persisted in challenging herself to be a loud voice in support of sustainability initiatives in her community.

Tom expressed a great deal of self-awareness in reflecting how his natural ambition conflicted with the kind of leader he believes to be most effective:

"And so it’s so tricky because I think, including myself, these visions of grandeur, “I want to be a hero or famous,” or whatever, “I want to write a great book,” or “Hope this podcast is incredible.” That’s I think human nature. But I think the best leaders are those that aren’t getting the accolades and perhaps even noticed necessarily because they do such a good job of nourishing and supporting those around them that they’re quietly leading and you don’t even hardly notice it.

Tom repeatedly spoke to humility as playing a key role in his leadership style. Yet he also admitted to a natural desire to succeed and be recognized. Recognition of this internal tension allowed Tom to evaluate his choices and behaviors as he strived to be a leader who nourishes and supports those around him.

Jennifer’s reflection also spoke to a high level of emotional IQ. Particularly in speaking of the challenge before her in the Peace Corps, Jennifer revealed how she anticipated that taking a risk would help her evolve as a leader. “I mean, just the uncertainty of it, the risk that’s involved, but I see the opportunity in the growth and the connections. I feel like I’m about to come about as like five times better person.” While
her family was hesitant about Jennifer’s commitment to two years serving in a community in Ghana, Jennifer saw the risk as one worth taking. She acknowledged that she still had room to grow as a sustainability practitioner and leader and that the very risks involved in the Peace Corps were an opportunity for that growth.

Molly, like Sarah, spoke of the challenges of leadership for one who self-identified as introverted. The demands of her sustainability work required her to stretch herself to engage stakeholders and build connections:

Being willing to go out and talk with people. Again, I don’t exactly know how to define that, but I have previously been much shyer, and so just going, and introducing myself to people from all over the university, and really connecting with them, I think was very useful when doing the capstone project.

Molly recognized that she had grown as a leader by challenging herself to reach out to stakeholders to inform her work, particularly for her capstone project developing a transportation plan for the college. In her senior year, she exercised a new-found ability to reach out to her community and engage with them in pursuit of more sustainable transportation policies and practices.

Finally, James expressed a keen self-awareness when speaking of his privilege in his community as a White man. He revealed an understanding that with this privilege comes a responsibility for creating leadership opportunities for others through his own leadership practice:

And I think it’s a constant challenge and I think a huge part of it also is just learning humility in that as much as I can say or do, but I’m my own set identities as a privileged White male, heterosexual. The list goes on. In general, hitting all
of those most privileged categories, not that I have greater responsibilities to think about this and put in time but also a need to acknowledge my own limits and a large part of that is creating opportunities for others to speak or for others to lead. And I don’t think I’ve figured out exactly how to do that yet.

James not only identified his privilege but also his personal limitations as a leader. While he understood the benefits of the political capital that his privilege afforded him, he also recognized that he had limits as a leader. For both reasons, he created opportunities for other voices to be heard. James also demonstrated high emotional IQ in acknowledging that he had not mastered this task yet and must still work to grow as a leader.

Through their reflections, all five participants demonstrated high emotional IQ, exhibiting self-awareness and an ability to understand how they have grown as leaders and acquired the skills they needed. They also all demonstrated an awareness of their role and potential impact as leaders, as well as their position of privilege or power relative to their society and those they would lead.

**Engaging in complex problem solving.** All five participants reflected on engaging in complex problem solving. Sarah, whose work included a long, failed campaign for fossil fuel divestment and the successful establishment of a campus food pantry, demonstrated complex problem-solving skills such as research, presentation and persuasion, stakeholder engagement, and team building. She also spoke to the role of understanding the history and context of any initiative in successful problem solving: “And I think another important part of that is we need to remember what we’ve done in the past, and the mistakes we’ve made, and, you know, the things we’ve tried that haven’t been effective.” Sarah believed that understanding past efforts, including failures, are
key to successful problem solving in the present. Sarah’s observation seems particularly relevant in higher education settings, where the turnover of student sustainability leaders is naturally high due to graduation. Researching the history of sustainability initiatives at the university to inform her own practice, as well as communicating that history through the mentoring of new leaders, was a key part of Sarah’s role as a student sustainability leader.

Tom’s experience navigating institutional hierarchies to build support for a campus learning garden and to secure grant funding demonstrated an ability to tackle complex challenges. In addition, Tom’s ability to balance work, school, and his home life by allowing each to inform and support the other is a demonstration of complex problem solving that is unique for many higher education student sustainability leaders:

It’s not extra work necessarily. I’m like, “Oh, I can apply a little bit of this to the Greater Portland Sustainability Education Network and a little of this to the Take Back the Tap campaign and a little of this to writing my papers for school.” So I’m doing my homework, schoolwork as active outreach for campaigning for sustainability and environmental justice, water rights, all these issues that I care about.

Balancing his life as a student, a college employee, a volunteer, and a spouse and father demonstrated Tom’s skillful approach to solving complex problems.

Jennifer applied several skills – identifying the unknown, researching, decision making, and communicating – to the development of her organic beauty product line. Taken together, the application of these skills demonstrated her facility at complex problem solving:
With sustainability, most of the time when people are making a product, they want to go for the cheapest thing so they can have a low-cost product, but when you’re trying to be sustainable, you’re trying to make sure, “Okay, is the product I’m using organic? Can I get organic, and if I do, can I afford to sell that and make a profit? Try to have sustainable, recycled plastic as containers, which is like triple the price of the regular plastic containers.” It’s like a different, you got to market it differently. You have to market it to people who understand that whole lifestyle, and then you have to try to teach those who don’t so you can profit.

In developing a sustainable and marketable product, Jennifer had to consider the needs of the environment, the consumer, and herself as the purveyor. She had to balance decisions against each of these concerns so that she could create a product that served the needs of the consumer and the environment without breaking her bottom line. While her product line was on hold as she entered the Peace Corps, she intended to apply her complex problem-solving skills to relaunch the line upon her return.

Molly also demonstrated complex problem-solving skills in her work developing a transportation plan for the college, working on public policy problems for the municipality, and encouraging collaboration between the municipality and college. Even her work at the bike shop, which may have seemed deceptively simple, was complicated. The bike shop didn’t simply fix and supply bikes, it also housed a volunteer program and offered bike repair training programs. In addition to the complexity of the operation itself, the underlying issue of how transportation intersects with human environmental health intrigued Molly:
A lot of the people that come in rely on a bike as their main source of transportation, but there’s plenty of people that drive as well. Then there’s issues with the bus system, and then people get to work if the infrastructure isn’t actually supporting pedestrians or bike bicycles. It’s this whole complexity that I became engrossed in.

Molly was attracted to the complexity of transportation, which, as a system, is deeply interconnected with human and nonhuman systems and outcomes. Whether working at the bike shop or on developing a full transportation plan for the college with her capstone team, Molly engaged in complex problem solving throughout her time as a student sustainability leader.

James’s role in the campaign for fossil fuel divestment required him to confront obstacles, re-evaluate the challenge, and pivot his approach. In 2015, despite pressure from the university community, the board of trustees voted against full fossil fuel divestment. What seemed like a failure inspired James and his peers to take a new approach to the problem:

Then we focused on relation building with the chief investment officer and worked closely with the chief investment officer over a series of meetings, and Eric, the CIO, started doing kind of a slow divestment process, moving some assets and investing in others, kind of reducing that percentage that was invested in fossil fuels, which was a win.

By pivoting from engaging the board of trustees to building a relationship and working directly with the CIO, James and his team were able to make progress, albeit slower progress, towards their goal. While the result of their work was not as flashy as the
announced full divestment, it was a win. The ability to re-evaluate a situation and change an approach in pursuit of a sustainability goal is an example of complex problem solving at work.

All five participants demonstrated an ability to engage in complex problem solving through their sustainability advocacy and implementation of sustainability initiatives. In particular, participants reflected that responding to failure and obstacles with agility and creativity allowed them to move forward despite setbacks.

**Challenging status quo.** Each participant spoke of challenging the status quo either in their personal sustainability practice or in their leadership roles. Sarah found that she had to challenge the status quo as a teenager. When she became a vegetarian, she found that her mother had a hard time understanding her decision:

> The vegetarianism was very new. Because my family’s very Southern and so meat is an important part of food culture. So my mom was like, “Why are you doing this? Why do you care about putting paper in the recycling bin? It probably just all goes to the same place, anyway.”

Sarah’s willingness to not only challenge the status quo with her initial decision, but to continue to live in a sustainable way, helped her family make their own lifestyle changes. She reported that her mother, who once threw the straw wrapper out the car window when leaving the drive-thru, now walked their neighborhood picking up trash. Sarah’s example had an impact on the status quo she challenged.

Tom reflected that he perceived himself challenging a strong societal and cultural status quo. While he felt, in his youth, like an outsider for his emerging commitment to leading a more sustainable lifestyle, in his current leadership role he felt the pressure of
the status quo more acutely. He saw an entrenched economic system as an obstacle to developing more sustainable systems:

Capitalism doesn’t allow for that, and that’s just the truth of it. There’s just no room for it, it doesn’t work in a supply and demand economy where the infinite growth is necessary for the system. That’s a tricky and daunting task to look at and really confront frankly, ’cause as long as we’re still trying to make solutions up within that social construct, I don’t actually believe we’ll ever get out of it necessarily. I want to but I don’t know if we can because it doesn’t allow for it.

Tom asserted that if the underlying system is not challenged and eventually changed, the solutions developed within that flawed system will be ineffective at addressing sustainability issues. Therefore, he made questioning entrenched systems a priority in his leadership practice.

Jennifer also reflected on challenging the status quo as part of her sustainability practice. She framed her decisions as moral ones, a question of right or wrong:

With sustainability you have to be able to, no matter what the status quo is, you have to be able to look at something and know within you that this isn’t right. You have to be able to act accordingly. So I see that, okay, I don’t think that you all are treating this environment well, so I’m going to do everything within my power to be an example for change to happen.

Jennifer made personal choices, such as being a vegan or buying sustainable products, as a way of living an exemplary life that others could follow. She practiced sustainability leadership by challenging what she believed was wrong in the status quo.
Molly did not use the phrase “status quo” in her reflection, but she did recall several moments in which she had to work to overcome obstacles and opposition posed by the leadership and culture at her college. For example, when she arranged to have the local transportation director come speak with college leadership about expanding bus services to and from campus, she said there was no interest on the part of leadership to collaborate. Molly sensed no urgency for change: “We have some really great relationships, but then at the same time some of the administrative higher up, there’s definitely some... It’s a relatively conservative campus in a lot of regards.” Despite having a thriving sustainability center and even offering a major in sustainability science, the college still exhibited some cultural resistance to supporting sustainability initiatives. Despite this resistance, Molly continued to work as an employee of the college to create sustainable transportation solutions for the college and the larger community.

James clearly stated his belief that a leader has the courage to challenge the status quo. He reflected that effective leaders have “that ability to go and have a vision where others say you can’t go.” James exemplified this attitude in his work. He recalled challenging university leadership in meetings when administrators made what he knew were false assertions. With his self-described “direct” manner he was unafraid to remind leadership of its commitments to climate change mitigation in order to prompt more timely action. While James acknowledged he made some mistakes when challenging authority, he continued to do so, albeit with lessons learned firmly in mind.

All five participants reflected that their work as sustainability leaders or their own sustainability practices had put them at odds with the status quo in their families,
communities, or society. Challenging that status quo required persistence and a commitment to the values and mindsets underpinning their sustainability work.

**Communication of inspiring mission.** Each participant spoke to the importance of communicating an inspiring mission either to their own sustainability leadership practice or to the practice of a leader they admired and emulated. Sarah recalled how her mentor used traditional Appalachian concepts to inspire Sarah and her peers:

> She would talk about the seven generations. She would talk about that you’re in a fixed point and if you think about three generations before you, that’s kind of like our memory as an individual. And then we can, we can conceptualize three generations ahead of us. And just thinking about how - I can’t really articulate it like she did (laughs) - but thinking about what our ancestors did before us, prepared us for where we are, and thinking about how we’re working for the three generations in front of us. It’s a way to think beyond ourselves, but in a way that is still manageable and coherent. She had a lot of stories about rebellion, you know, about how they were going to bulldoze some trees, so everybody held hands, and stood in front of them, and slept on the bulldozers.

Connecting sustainability to the traditions of the people of the place helped Sarah’s mentor build trust and energy for the task at hand. By calling on a shared tradition, Sarah’s mentor helped community members connect with sustainability and understand how their actions could have an impact not just on the present, but also on future generations.

Tom’s commitment to mentoring as part of his leadership practice required him to inspire those who may have considered themselves as followers to become leaders:
I like to hold other people up and provide opportunities for them to do the things that I am seeing that can be done, so I really like to participate in engaging, and encouraging, and supporting other people to lead as well, to help create more leaders.

Tom messaged that not only is sustainability achievable, but one can realize one’s own leadership potential while working towards sustainability goals. He inspired others to not only strive for sustainability in their lives and communities, but also to become leaders to help achieve these goals.

Jennifer reflected that the obstacles to achieving sustainability goals can often be overwhelming. Having an inspiring message is key to keeping teams moving forward with hope and focus. When she spoke of her mentor, she highlighted this strength:

And so to have somebody come in a positive angle like, let’s do this. Let’s make our environment better. Let’s try. Let’s do what we can even if it’s just a little bit and it doesn’t seem significant, let’s at least try.”

Jennifer pointed out that it is important to recognize what might be considered small victories on the path to meeting broader goals. By celebrating these victories that may appear less significant, teams can be inspired to keep moving forward.

Molly spoke of vision and motivation when reflecting on the skills she believed were key to effective sustainability leadership:

Clear communication with all parties is crucial to be a good leader in my opinion. Someone with a vision and motivation to reach a goal by laying out action items of how that goal may be achieved is something that sets apart a good leader.
In addition to communicating an inspiring vision, Molly asserted that a leader must have a clear action plan in order to achieve an aspirational goal like sustainability. Like Jennifer, Molly expressed an understanding that sustainability as a goal can be overwhelming, so grounding inspiration in tasks that be celebrated as small victories is key to success.

During his time studying in Sweden, James received a clear message that inspired his own sustainability practice and leadership:

The coolest and biggest takeaway is sustainability is possible. Humans aren’t inherently broken and incapable of doing good things and making sensible policy and living in a sensible way that’s more in tune with environmental processes and less destructive and all that other stuff.

The example provided by the community in which he lived and studied inspired James to believe that sustainability is achievable, despite the enormity of the challenge. He brought that message back to his own work on his campus, where he continued to advocate for sustainable policies even in the face of some resistance.

All five participants reflected on the importance of communicating an inspiring mission when working as a sustainability leader. The scope of the sustainability challenge, as well as some of the imagery, data, and language used, can be daunting and even depressing. An inspiring mission can help teams continue their work despite the enormity of the task, obstacles encountered, or even failure.

**Integrity of systems mindset and practice.** When speaking of their own leadership practice or the practice of leaders whom they respect, all five participants reflected that demonstrating the integrity of a systems mindset is a powerful tool.
Making and living sustainable choices – in essence, talking the talk and walking the walk – is vital for successful leadership. Sarah began making choices as a teenager that reflected a commitment to a systems mindset, recognizing that her daily choices had an impact on human and nonhuman systems. As a law student, she continued to make those choices:

So being a law student I kind of constantly am thinking about balance in my life. And so my prioritization of sustainability practice is something that helps me focus in on that balance that I need... And then that kind of lends itself to be finding balance with health, and activity, and leisure a little bit. Just staying as an individual well rounded so I’m able to continue providing for others.

Sarah shopped locally, continued to limit her consumption of new goods by thrifting, recycled, and remained a vegetarian. These practices not only demonstrated the integrity of her commitment to sustainability, but also allowed her to maintain a needed balance in her life so that she could continue her leadership work.

Tom reflected that living by example, rather than by word, has tremendous power. He demonstrated his commitment to the systems mindset by making and living more sustainable decisions:

There was a time when I was all high and mighty, I’m like “Oh, you got to watch, eat your meat,” and all these things and trying to inundate people with the shock and awe of why they should change their ways. But I stopped very quickly in that because I was like, “That’s not my place, I can live by an example and that’s about as good as I can do.”
By choosing to lead through action, rather than persuade through language, Tom felt he could have a more powerful impact as a leader. By walking a more sustainable path in his own life, Tom encouraged others to join him.

Jennifer recalled a particular moment in which her mentor’s actions, rather than her words, inspired Jennifer. While leading an initiative to recycle packing materials during student move-in day, Jennifer’s mentor literally dove into the task at hand:

We did a program called when students first moved in we were, I forgot the name of it, but we were doing initiatives to recycle boxes and stuff and she really was about it. She would go into dumpsters. She was pulling out cardboard, and I’m just watching her. And all the things that she done just in the name of sustainability not because, she got recognition, but she wasn’t doing it for recognition. She was doing it because she felt obligated to make a difference.

Jennifer highlighted that her mentor was taking action out of a sense of “obligation to make a difference.” It was not enough for her mentor to educate others about sustainability or even organize initiatives. She had to be on the front lines, doing the dirty work. She felt compelled by her values to do so. She did not crave recognition for these efforts; rather, they demonstrated the integrity of her mindset.

Molly spoke of the transformative experience of living for a summer in her campus’s communal housing. While there, she was able to engage in more sustainable living practices with her peers and even try new approaches to a more sustainable life. Already committed to recycling, reusing, and making sustainable choices around transportation – Molly was rarely separated from her bike – Molly explored new avenues for expressing her commitment to the systems mindset:
It also gave you an opportunity to engage in gardening and so, kind of some more
down-to-earth practices that maybe you don’t do if you’re living on campus as much. Everything from art or woodworking or just back to cooking and putting
together ingredients from the farmers market and from the garden.

Molly referred to her lifestyle in communal housing as “down-to-earth.” Molly,
recognizing the impact her daily decisions and activities had on human and nonhuman
systems, chose to expand her understanding of what a sustainable lifestyle could look
like. By choosing to live that life, she strengthened her position as a sustainability leader.

James spoke of the importance of the lived example in leadership. He stated, “An
ability to call others through lived example to be their best selves, I think is really
important in leadership.” James lived his example by simplifying his life (reducing his
consumption of goods), recycling, using public transportation, and being a vegetarian. In
doing so, he believed he was encouraging others to make similar sustainable choices.

Having the integrity to act on one’s beliefs both as a leader in the public space, but also
as an individual in one’s private space, is a key skill of sustainability leadership.

All five participants reflected that demonstrating the integrity of a systems
mindset by making and living sustainable choices is a powerful leadership tool. Leading
by example allows a leader to build trust and inspire others to follow or join.

**Open-coding Findings**

As a final step, open coding captured emerging themes regarding student leader
motivation, action, and impact. Identified themes included the intersectionality of
sustainability advocacy and the roles of experiential/project-based learning and
mentoring in the participants’ evolution as leaders. These themes may provide insights
relevant to the study’s purpose: “to deepen the understanding of postsecondary student sustainability leaders’ motivations and identify the skills they have employed in their advocacy for campus sustainability issues in order to inform the development of curricular and cocurricular sustainability leadership learning experiences.” Figure 6 summarizes the participants’ expression of the emerging themes of intersectionality, experiential and project-based learning, and mentoring.

**Figure 6.** Participants’ expression of emerging themes.

**Intersectionality**

Two participants spoke explicitly and repeatedly about the intersectionality of sustainability advocacy work. Intersectionality refers to the intersection of human concerns within a sustainability framework. Both Tom and James gave specific examples of how they identified intersectionality between student groups and used that intersectionality to build deeper and more productive alliances for sustainability. In his role as environmental justice coordinator, Tom broadened the alliances of student groups engaged with sustainability work. Tom did not believe that environmental or
sustainability justice could be separated from social justice concerns. It is crucial that Tom, in his sustainability leadership, felt the moral imperative to give the platform to others in order to understand their viewpoints, not just use it as a tool to build stakeholder engagement and teams:

And in the last couple of years, I am completely engulfed in the environmental justice, social justice aspect of the work now because I'm like, “Oh, we can’t do anything without everybody being on the same page and moving forward.”

By actively linking environmental justice to issues of social justice, he demonstrated to leaders across the community how they have shared concerns and values that are captured under the umbrella of sustainability. Even if merely helping groups plan events supported by more sustainable products and practices, Tom found that opening the door to new points of view on sustainability advocacy resulted in stronger and more diverse solutions.

James described a similar view that extended beyond interconnectedness and interdependence to specifically reference the intersectionality of human systems and concerns under the sustainability umbrella. Like Tom, he self-identified as a person of privilege due to his gender, race, education, and economic status. With that privilege he strived to build bridges between groups, identify shared causes, and elevate those who were often less voiced in the sustainability conversation:

One of the big ways that my view of sustainability has grown or shifted through the work is just really coming to learn and understand that importance of intersectionality. And the need to show up and stand in solidarity with others on
their sets of causes and that that is working on the whole and focusing on building that cross sectoral stronger approach. So going wider as opposed to more narrow.

As detailed previously, James recalled a specific example of bringing a student socialist group into the sustainability conversation through recruiting their participation in a Climate Action Day. By exploring together how sustainability concerns overlapped with the concerns of workers, James and other student leaders found common ground and leveraged their shared strength for a successful event. Both James and Tom spoke directly about the concept of intersectionality as playing a large role in shaping how they pursued their roles as sustainability leaders.

**Experiential and Project-based Learning**

Cross-case analysis revealed that three of the five participants spoke explicitly about the importance of experiential or project-based learning to their evolution as sustainability leaders. All three participants were majors in sustainability-related disciplines: biology, sustainability science, and environmental science. However, there was little reference in their reflections to traditional course work (lecture, labs, etc.). Rather, they spoke of projects, internships, and campus initiatives as key vehicles for learning their leadership practice.

While Jennifer spoke of some impactful classroom experiences, she spoke most often and in most detail about opportunities she had to try and fail through her extracurricular work. As detailed earlier, her initial efforts on behalf of the campus garden did not result in the outcomes had hoped for. She was unable to create a community approach to the garden in her first semester or to bring together the gardeners for a harvest celebration. Disappointed, she turned to the director of the sustainability
center to understand where she went wrong and how she could move forward. Her time at the urban gardening boot camp, itself an experiential learning program, helped her learn from the mistakes she had made and develop a new approach to her leadership of the project. She recalled:

There's nothing like experience. Nothing. I mean, you can read a book. It could prepare you mentally. You can have some talks. You can look at some PowerPoints, but until you get out there and you get your hands dirty and you fall a few times

It is perhaps no surprise that Jennifer chose the Peace Corps for her next leadership endeavor. She anticipated that as much as she will bring to the community she will serve in Ghana, she will also learn through the successes and failures of the experience.

While Molly enjoyed sustainability-relevant coursework as a sustainability studies major, she reflected that project-based experiences had the greatest impact on her development as a sustainability leader. In particular, she found the greatest return from projects that had real-world application and were intended to be implemented either on campus or in the community. She recalled connecting with a colleague from the municipality:

She had this project idea and then I was able to work on that. And so it was a tangible ... so, I think that’s what makes it exciting, is that it’s something tangible and not just, oh this is just for classwork, but also getting something that you’re interested in.

Molly explicitly spoke of the importance of having a real world application for her work. Her capstone project was also intended to be applied to solve the transportation
challenges faced by her college. This inspired her to dive into the challenge: “I really liked the capstone experience of taking something that I was working on all the time with transportation on campus, and formulating some type of action.” Knowing that her project-based work had an impact beyond the classroom inspired Molly’s learning.

James recalled embracing experiential learning as a Boy Scout, travelling to national parks across the country. The experience of being in and with nature allowed him to build a strong, personal connection to natural systems that continued to drive his work as a sustainability leader:

That relatively routine exposure to the outdoors became something that I have really enjoyed and loved, and was definitely something I primarily owe my dad... So that was the initial, “Wow, nature can be beautiful. And this is something that is important to me.”

This repeated exposure to the natural world deepened James’s connection to it and his feeling of responsibility towards it, leading him to choose environmental science as a major in college.

James had repeatedly engaged in internships and study-abroad opportunities. Immersing himself in different cultures, particularly in Sweden, and engaging in projects with real-world applications, as he did during his internship in Vietnam, had a deep impact on his evolution as a leader. James said he learned best “by failing. Trying and failing.” This belief in experiential learning extended to his role as an experiential trip leader for his university’s outdoor education program. He believed in the power of experiential education to connect him to the natural world so much so that he committed himself to help his peers have a similar experience.
Three participants spoke of the importance of experiential or project-based learning to their evolution as sustainability leaders. While sustainability-related majors and their coursework are of value, participants identified projects, internships, and campus initiatives as key vehicles for learning their leadership practice.

**Mentoring**

A final theme emerged from open coding. Two of five participants spoke of the role of mentors in developing their sustainability leadership practices. Three of five participants spoke of the role they played as mentors to emerging student sustainability leaders.

Sarah’s reflections revealed the importance of being mentored by her high school teacher, who inspired and encouraged her curiosity about sustainability. Following her teacher’s example, Sarah made changes to her personal practice and even took on her first leadership role in recycling at her high school. As detailed earlier, a mentor during her work as a sustainability leader on campus and the surrounding community taught her the importance of sharing an inspiring message and using storytelling to bring together teams of diverse stakeholders.

As Sarah grew into her leadership roles, she mentored members of her own family, changing their behaviors through her example. Sarah purposefully mentored fellow student leaders at the university:

A priority for me as a student leader was having one on one meetings with as many members of the organizations as I could. Anyone who wanted to do that, I would sit down, normally when they were first getting involved. I would meet them for coffee and just kind of get a sense of who they were, and why they
wanted to do environmental work, or what it was that they wanted to see in their
next three, four years on campus, and try to just always keep all of that in mind.
Through mentoring, Sarah emulated the leaders that inspired her and worked to ensure sustainability leadership succession at the university.

Jennifer also spoke of the important role her mentor, the university’s director of the center for sustainability, played in her evolution as a sustainability leader. Jennifer credited her mentor with inspiring her, helping her build the knowledge and skill set to lead, and being a guiding force in her development. In particular, her mentor allowed Jennifer to identify what she needed to grow as a leader and then helped her along that path – by sending her to the urban garden bootcamp, for example. Of her mentor, Jennifer said, “You just have to lead by example and hope that the right people see.” Her mentor provided an inspiring message that demonstrated how one can attract new stakeholders to a cause and live a life of integrity, demonstrating her commitment to sustainability through action.

Like Sarah, Tom and James also spoke of mentoring emerging leaders as part of their leadership practice. Tom repeatedly referenced coaching or encouraging new voices in his college’s sustainability efforts. He linked mentoring to the intersectionality of sustainability advocacy. By “nourishing and supporting” those around him, Tom tried to elevate the leaders he saw all around him. He described this mentoring as a personal need that must be fulfilled. “I love helping, I love, love, love the reward of seeing other people succeed, have comfort, feel heard and respected and all those things.”

James also spoke to mentoring, although less explicitly. Through his work across sectors of student leadership, James sought to “create opportunities for others to speak or
for others to lead.” While James recognized that not all stakeholders may appreciate his direct leadership style and wish to emulate it, he placed a high priority on explicitly creating space for new voices to be heard in the sustainability discussion. By inviting the student socialist group to a Climate Action Day and engaging other groups in conversations about shared values and concerns, James mentored emerging sustainability leaders.

All five participants spoke of the role of mentoring, either as mentees or mentors, in their sustainability leadership practice. Whether mentored by a peer or supervisor or acting as a mentor for emerging leaders, all five participants recognized the importance of mentoring to their practice and to the succession of sustainability leadership in their campus communities.

**Conclusion**

The cross-case analysis suggests that there are common mindsets and skill sets shared by the participating student sustainability leaders that can inform this study’s three central research questions: What motivates students to become sustainability leaders in higher education settings? How do student sustainability leaders describe their role and effectiveness as leaders, in collaboration with or comparison to university personnel responsible for moving the institution’s goals of sustainability forward? What leadership qualities and skills have student sustainability leaders used to transform complex higher education cultures?

The five student sustainability leaders who participated in the study demonstrated a shared motivation to model, inspire, and facilitate decision making that recognized the interdependence, interconnectivity, and equity of human and nonhuman systems. Their
reflections also suggested that a personal or spiritual connection to nature motivated their sustainability leadership as well as their personal practice. All five participants also spoke of the desire to not only lead for the benefit of current systems, but for the benefit of systems in the future. They were inspired to lead for a more sustainable today and tomorrow.

All five participants spoke about university or college staff or faculty who inspired, supported, or actively collaborated in the sustainability initiatives. These staff and faculty members provided guidance as well as an environment in which sustainability leadership and initiatives were fostered. These faculty or staff members were typically associated with offices or centers for sustainability that had been established and were supported financially by the institutions. Participants reflected that they experienced allied and supportive leadership in their campus communities, but also significant opposition that valued the status quo. Four of five participants also spoke of institutional leaders who they perceived as obstacles to sustainability on campus. On larger issues like fossil fuel divestment or the investment of significant funds in initiatives such as installation of clean energy technology, these leaders demonstrated that they did not share student leaders’ priorities for sustainability. In these cases, participants demonstrated an ability to adapt approaches and arguments to move projects forward or to assess the landscape and make decisions about how to more effectively apply their skills and resources.

Finally, in their reflections on their lived experiences as student sustainability leaders, participants demonstrated skillsets consistent with those suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Building
and engaging teams of stakeholders and identifying stakeholder needs were skills all five participants reported actively employing in their sustainability leadership. All five participants also reflected on their engagement with complex problem solving, particularly in challenging the status quo. When confronted by logistical or political obstacles, participants were able to use research and communication skills to reassess the landscape and pivot to new approaches. All five participants demonstrated high emotional IQ, particularly in terms of self-awareness and an understanding of how their leadership practice has evolved. Finally, when speaking about their own practice or the practices of leaders they admire and would emulate, all five participants spoke of the power of communicating an inspiring mission and of demonstrating the integrity of a systems mindset. In the face of what can be a daunting undertaking – challenging current ways of thinking and knowing to advocate for more sustainable practices – an inspiring mission well communicated and a life lived as an example for others to follow are powerful leadership tools.
Chapter 5: Conclusion

This study sought to deepen understanding of how sustainability leadership education inspires and impacts postsecondary students in order to help institutions develop more effective approaches and programs. The study focused on learners, particularly those who have expressed sustainability leadership through their successful advocacy for sustainable practices at their higher education institutions. It explored and examined what motivates student sustainability advocates, how student advocates have catalyzed sustainability efforts on college and university campuses, and what leadership qualities and skills have they used to transform complex higher education cultures. This comparative case study of the lived experiences of five student sustainability leaders in higher education settings leveraged interviews with student sustainability leaders. It resulted in data and insights that may help institutions shape better sustainability education programs and policies that fulfill their responsibilities to educate leaders for sustainability in our institutions, communities, and global society.

The study focused on three central research questions:

- Why do students become sustainability leaders in their higher education settings?
- How do student sustainability leaders describe their role and effectiveness as leaders, in collaboration with or comparison to university personnel responsible for moving the institution's goals of sustainability forward?
- What skills or qualities do student sustainability leaders use in their higher education settings?

This study used criterion sampling of high-impact student sustainability leaders through collaboration with two national organizations, American Association for
Sustainability in Higher Education (AASHE) and Second Nature. Both organizations train and recognize excellence in student sustainability leadership. The initial field of possible participants were those who had won AASHE and Second Nature leadership awards or been engaged with award-winning projects since 2015. After several possible participants were identified, the field was narrowed based on how well the potential sample reflected engagement with the three pillars of sustainability: economic, social, and environmental. Finally, site was considered through criterion sampling as well; the five study participants were drawn from higher education settings that offered contrasting environments in which students were expressing sustainability leadership. Seidman’s (2014) three-interview model was used to collect data, allowing participants to reflect upon and make meaning of past experiences, placing them in context with their own lives.

**Interpretation of Findings**

When considered through the lens of the study’s central research questions, the findings suggest that student sustainability leaders not only share a motivation informed by an understanding and embrace of a systems mindset, but that they express their leadership through a shared set of leadership skills. These common motivations and skills suggest a student sustainability model that could be used by higher education institutions to develop the learning experiences needed to educate and develop the next much-needed generation of sustainability leaders. Figure 7 illustrates the student sustainability leadership model suggested by this study’s findings.
Understanding the mindsets of student sustainability leaders can suggest what motivated them to pursue such a complex field, often as an extracurricular activity that did not yield any academic credit. Warwick (2016) observed that attention to each individual learner's drivers is key to program success: "At the heart of [education for sustainable development] is explicit attention to learners being energized and enthused by exploring the ethical stance of holding an active concern for well-being and stretching their compassionate consideration" (p. 106). Warwick spoke of the mindset of the leader, how she or he approaches the world and sees her or his responsibility to it. Warwick encouraged institutions to design programs that appeal to a learner's moral imperative for
well-being across systems and allow him or her the opportunity to activate that imperative through sustainability coursework and extracurricular engagement.

Two participants spoke explicitly of the role this moral imperative played in their sustainability leadership. James connected his work directly with his Jesuit faith:

My faith is a faith that does justice, and that’s what I fundamentally view as what faith is for me... The Jesuit approach really emphasizes social justice and working to build a better world... That’s my faith, and that’s what drives my view of where to spend time, energy and effort and then also what it means to be human.

James recognized the intersection of social justice and sustainability and spoke of a fundamental personal need to work towards building a “better world.” This moral imperative sustained him in his work. Tom expressed his motivation simply: “I’m just doing what I feel like is common sense and decency and what we need to be doing in this world.” Tom engaged in a myriad of sustainability-related activities while carrying a full course load as a returning college student and managing life as a husband and father because, as someone who wanted to live a life of decency, there was no other path he could take. As Warwick argued, the motivation to lead for sustainability is ethically based and deep seated.

Warwick (2016) also asserted that sustainability education programs must appeal to a systems mindset, specifically the belief that we as humans are all interconnected with each other and nonhuman systems: “[ESD] is based upon the premise that not only can students help others in their pursuit of a quality of life, but also that they themselves need the help of others—pointing towards the interconnected nature of how all our lives are
bound together” (p. 110). This recognition of the interconnectivity and interdependence of systems was a key driver for the five participants.

Molly reflected that, while she initially approached sustainability through a humanistic lens, she incorporated an appreciation for the interconnectivity of human and nonhuman systems into her work. She reflected:

I think [sustainability] has become more people centric for me, but not disregarding the more environmental side of it, but I think it goes hand in hand, and people have such a big impact on the environment, and so creating healthy communities is one way to help with environmental degradation.

Molly was motivated by the idea that solving human problems can lead to solutions to environmental challenges and vice versa.

James took this idea a step further, arguing that the idea of isolated, independent systems is a false paradigm that leads us astray from reality:

Isolated systems just don’t exist. But developing this sort of systems thinking, and understanding that social and ecological systems are all...that’s what the systems are that we live in and work in. There’s no human who can live independently of the natural world, or earth, right? From just eating food to drinking water, to breathing air, right? Trying to chunk things into... this is economy over here, this is a society over here...or this is the environment over there in that park; it doesn't at all reflect the reality of our world, which is interconnected.

In his work, James sought to educate his community about systems thinking so that more sustainable decisions could be made and more innovative solutions put into action. He was driven by his belief in the interconnectivity of systems.
Sarah’s reflection also resonated with Warwick’s assertion that learners are motivated by the concept of interconnectivity and interdependence. She spoke about the misconceptions about sustainability as a practice and a goal:

I think sustainability is about so much more than just recycling or using reusable products. It’s really a lifestyle—in which individuals and larger entities, businesses, communities, consider the impacts of their own existence, and sustenance on future generations—and not only future generations, but other groups of people in the present.

Sarah expressed not only an understanding of interconnectivity in the present and the impacts that humans can have on nonhuman systems, but also of the interconnectivity of present and future. Making a more sustainable future motivated her to continue her work into law school.

Finally, in their qualitative study of sustainability program directors, Shriberg and MacDonald (2013) argued that appealing to a learner’s instinctive need to “create a better world” in the present and for the future is key to effective sustainability education:

Sustainability can form a strong basis for sustainability leadership training, if students are encouraged to think beyond the current state into an envisioned future of ecological, social and economic abundance in a steady-state economy. Few people wake up motivated to “sustain”—they want to create a better world. (p. 17)

Shriberg and MacDonald asserted that while the concept of sustainability may not be immediately recognizable to some learners, the desire to improve the world for today and tomorrow is a common motivation around which programs can be designed.
While all participants spoke about their practice with a clear personal definition of sustainability in mind, several spoke of the need to create practices and solutions that will have impacts in the world over time. Jennifer reflected, “We need to practice the things that we do we need to practice in a way that it can continue from generations after us it can still be continued and it’s not detrimental to the future.” Tom, with his broad understanding of sustainability, also spoke about the long-term impacts he hoped his work would have:

Sustainability is everything too, we’ve put this word that can mean so many things. I was even thinking about the separation of social justice and what we’re calling environmental justice, but it could be sustainable justice. It's just...if we’re not sustaining...the longevity of the planet, then what are we doing? All the other plants and animals have appeared to not be destroying their home, except for us, so I just want that to reverse.

The five student sustainability leaders who participated in the study demonstrated a shared motivation to model, inspire, and facilitate decision making that recognizes the interdependence, interconnectivity, and equity of human and nonhuman systems. All five participants also spoke of a desire to lead not only for the benefit of current systems, but for the benefit of systems in the future. They were motivated by an ethical imperative and by an understanding of the interconnectivity of systems to lead for a more sustainable today and tomorrow.

How Student Sustainability Leaders Describe their Role and Effectiveness as leaders and in collaboration with or comparison to university personnel responsible for moving the institution's goals of sustainability forward?
Student sustainability leaders conduct their work in context with larger institutional systems in which clear hierarchies exist. Working within that hierarchy requires an understanding of those systems as well as a skillset that allows student leaders to both collaboratively work with and effectively challenge institutional leadership.

Sustainability advocacy often requires student leaders to challenge the paradigms and priorities of the institution in which they operate. Egri and Herman (2000) wrote:

> Even so, to the extent that being environmentally proactive challenges the societal and industrial status quo, we suspect that these individuals require substantively different configurations of personal values, attributes, and skills than is the norm for those working and non-environmental sector organizations. (p. 599)

In distinguishing sustainability leaders, Egri and Herman pointed to the persistent need to challenge the societal status quo. Sustainability leadership often requires leaders to change mindsets before they can change actions. This may put them at odds with their institutions’ leaders.

While leading her university’s fossil fuel divestment campaign, Sarah confronted serious opposition from institutional leadership:

> The administration, they wouldn’t hear it. I remember the only in person meeting I ever had with our chancellor was about the divestment campaign, and I just remember him talking over me, and saying kind of in a sarcastic way, “Where are you from?” I said, “I’m from Middle Tennessee.” He’s like, “Okay, well how did you get here?” He just sets you up to say “I drove here” and he’s like, “Oh well, you drove here so we need fossil fuels, ’cause what did you put in your car? You
didn’t put wind energy in your car.” It’s the same old tried and tired...just resistance. It’s also belittling.

Sarah continued the campaign for two years before making a calculated decision to abandon the effort, acknowledging that she would be unable to make progress with the current institutional leadership. In this case, Sarah clearly saw herself in opposition to university leadership.

James reflected on a similar experience. Despite having established a center dedicated to sustainability and environmental concerns, institutional leadership was reluctant to make clear commitments to renewable energy as part of its climate mitigation plans:

So, the meeting yesterday was frustrating because there was a lack of respect in the work that we had done and kind of a lack of respect for us. It seemed like the goal from their side was to push back and not commit to anything and say, kind of vaguely, “We’re working on it,” and it took us kind of really being very pointed in our questioning to get any sort of commitment or any sort of, “Okay, so what’s your actual plan?”

Like Sarah, James interpreted leadership’s response as not only opposed to the initiative itself, but in some ways disrespectful to the student and community leaders who proposed the initiative. While James eventually found some success working with the administration to establish more clear sustainability goals, he had to find ways to work within and even around the system to do so.

While institutional hierarchies may include leaders who are obstacles to sustainability, all five participants identified leaders who inspired and collaborated with
them on sustainability initiatives. These leaders served as mentors to the five participants. Egri and Herman (2000) wrote, “Environmental leaders identified a need, clarified the vision, and inspired followers who might support their vision” (p. 599). Cortese (1999) also spoke of the importance of sharing an inspiring message while working in what can be a daunting space. Rather than focusing on eliminating a problem, Cortese suggested that leaders can share a message of creating something entirely new and sustainable: “Creating, on the other hand, is bringing into existence some thing or situation that we want – which is usually a much better motivator for change than a problem we need to eliminate.” (p. 4) Leaders in an institutional hierarchy who share such inspiring messages not only serve as mentors to student sustainability leaders, but also model the priorities and practices emerging leaders need to grow.

Jennifer spoke frequently of her mentor and collaborator, the director of her university’s sustainability center. Jennifer reflected on the power of her mentor’s positive message:

As we know, the topic of sustainability can get real dark and depressing, but the way that she presented it was always as, “You know this is happening, but this is what you could do to better. This is how we can take steps forward,” instead of “Ugh, this is how it is in such and such years. We’re all going to die.” Jennifer described watching her mentor dive into dumpsters to retrieve recyclables and how she modeled a sustainability practice built not on a need for recognition, but on a desire to contribute to the betterment of her world. This message and model greatly inspired Jennifer as she faced obstacles in her own sustainability work.
Sarah also spoke of the inspiration she found in a mentor during her undergraduate years. She recalled that her mentor used the traditions of the region to inspire communities to action:

She would talk about the seven generations. She would talk about that you’re in a fixed point and if you think about three generations before you, that’s kind of like our memory as an individual.... It’s a way to think beyond ourselves, but in a way that is still manageable and coherent. She had a lot of stories about rebellion, you know, about how they were going to bulldoze some trees, so everybody held hands, and stood in front of them, and slept on the bulldozers.

Along with the opposition to sustainability Sarah found among the institutional leadership of her university, she also found allies who mentored and collaborated with her, helping her persist and evolve as a sustainability leader.

Working within institutional hierarchies requires that student sustainability leaders not only understand that system and their place in it, but that they also leverage a skillset to collaboratively work with and effectively challenge institutional leadership.

Four of five participants spoke of institutional leaders who they perceived as obstacles to sustainability on campus. All five participants spoke about university or college staff or faculty who inspired, supported, or actively collaborated in sustainability initiatives. Participants reflected that they experienced allied and supportive leadership in their campus communities, as well as significant opposition that valued the status quo.

**Skills or Qualities Student Sustainability Leaders Use in Higher Education Settings**

Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015) suggested a skillset that supports and informs sustainability leadership. This
skillset is reflected in the qualitative data collected from the participants. The ability to work on complex problems with engaged teams of diverse stakeholders resonated strongly in all five reflections.

Of the complexity of sustainability practice and leadership, Tideman and Zandee (2013) wrote:

In short, the future leader’s mindset recognises the changing context with trends towards increasing complexity and interdependence among stakeholders. In addition, this type of leadership employs a long-term view, a sense of continuity, while exhibiting open-mindedness, moral courage and a high degree of self-knowledge. (p. 24)

Being able and willing to stand up for one’s own beliefs, as well as being able to listen to and empathize with others’ experiences and points of view, is a key skill for sustainability leaders as they build the teams they need to succeed.

In recalling her experience writing her capstone project, Molly reflected that she understood the value of these skills, as well as the personal challenge they present to her. As part of her project, Molly and her team interviewed more than 20 stakeholders from across her college community:

Being willing to go out and talk with people. Again, I don’t exactly know how to define that, but I have previously been much shyer, and so just going, and introducing myself to people from all over the university, and really connecting with them, I think was very useful when doing the capstone project.

Molly demonstrated self-awareness in expressing that her shyness was an obstacle she had to overcome in order to be an effective leader. While acquiring insights from a
diverse set of stakeholders, Molly ran the risk of encountering contrasting points of view or even direct opposition to the transportation plan. However, she understood that addressing resistance directly and understanding its origins were crucial to the successful development of the campus transportation plan.

James also expressed an understanding of and an ability to listen and empathize with stakeholders:

Start by listening. And then, asking questions, I think. “How would you approach this challenge? Do you view this as a challenge? If not, why not? Why is this a non-issue for you?” So those sorts of questions. But yeah, and then just when hearing things come through that do ring with my view, holding up I heard you say this, that this is important for you. Or I heard you say that you value this or whatever. And using that as a way to show that we’re not on opposing sides but we’re on the same side.

James worked to understand the motivations of all stakeholders and how their lived experiences informed those points of view. Like Molly, he demonstrated a high level of self-awareness. In order to find common ground with stakeholder values, he first had to understand his own.

Working across sectors and with conflict are key skills required of sustainability leaders. Just as sustainability problems are complex, the paths to developing solutions are often complicated. Shriberg and MacDonald (2013) wrote, “Moving on a sustainable path inevitably involves wicked characteristics like stakeholder conflict, deep ethical choices, and layers of uncertainty and interconnection. These qualities require a leadership theory and practice suited to cross-boundary, systems-oriented thought and
Sustainability leaders must be prepared and able to bring together seemingly disparate groups under the umbrella of a shared cause.

Sarah spoke about the challenge of working with communities that have been built on a social and economic foundation of extracting resources such as coal. Sarah had been purposeful in communicating to these communities a desire to help, but also recognized a clear need to listen to stakeholders:

One thing that is really important in being a leader in my community, and in Appalachia I think in general is, because of the exploitation we’ve experienced we’re really wary of outsiders, and people coming in and saying, “Here’s what I think you should do about this, and here’s what will help you get out of this struggle that you’re experiencing.” So I think people, leaders coming from within the community and saying, “I’m hearing this is what you need, here’s how I can help support that” That’s really how I think change is gonna happen for us.

Sarah’s reflection is explicit in identifying the challenges of working in communities with deeply entrenched beliefs and systems. However, as Shriberg and MacDonald suggested, she found an effective way to work across these perceived boundaries to start building coalitions.

Jennifer also spoke of the need to identify and acknowledge stakeholder points of view in sustainability work. There is a danger that one’s initial approach to coalition building can have negative effects if one approaches it from a point of authority:

I definitely believe that you got to be careful because if you say try to bring it [sustainability] in the wrong way, you turn people off. You lose them from the
conversation. And you also have to be willing to listen because had I not been able to have, be privileged enough to go to college, I might not have been as sustainably driven as I am. A lot of people don't have that opportunity. So you have to listen to where they're coming from, what background they have. How can you talk to them about it without sounding or offending them? I think communication is everything.

When presenting sustainability as a paradigm and practice, Jennifer was careful to understand that she may be challenging deeply held value systems. She therefore needed to acknowledge and respect those systems and the experiences that have informed them before she can begin the work of helping those mindsets evolve. As Shriberg and MacDonald suggested, it is a wicked challenge to build the teams needed for sustainability work, but it is one that can be overcome.

Metcalf and Benn (2013) echoed Tideman and Zandee and Shriberg and MacDonald, suggesting a cluster of leadership skills needed in the sustainability realm. They wrote:

The complex and dynamic nature of interpreting just how and in what way an organisation is to be sustainable means that leadership for sustainability requires leaders of extraordinary abilities. These are proposed to be leaders who can think through complex problems, engage groups in dynamic organisational change and have high emotional intelligence (EI) to deal with the personal emotions associated with complexity. (p. 370)

Not only must leaders have the skills needed to navigate complex situations, but they must have the self-awareness to understand their own reactions to that complexity.
Tom demonstrated an ability to think and work through complex problems. Tom collaborated with the student body president to secure the support and funds needed to install a campus learning garden. First, Tom and his peers needed to advocate for the project, which had been included in a previous bond request but had never been implemented. Working with his team, Tom secured the administration’s renewed commitment to the project. Finding funding was a final obstacle:

I'd never written a grant before, so that was a whole new world to work with. We wrote a $40,000 grant to get this established, got it approved. I am amazed by the bureaucracy of all the things that go on with getting anything done, but it is going to happen.

Tom worked on these complex initiatives in addition to his coursework. Indeed, balancing his life as a student, a college employee, a volunteer, and a spouse and father was a demonstration of complex problem solving in itself:

It’s not extra work necessarily. I’m like, “Oh, I can apply a little bit of this to the Greater Portland Sustainability Education Network and a little of this to the Take Back the Tap campaign and a little of this to writing my papers for school.” So I’m doing my homework, schoolwork as active outreach for campaigning for sustainability and environmental justice, water rights, all these issues that I care about.

Tom’s ability to navigate complex institutional and personal obstacles to achieving his goals as a sustainability leader demonstrated a strength in problem solving, as well as a great deal of the self-awareness needed to persist and succeed in his work.
In their reflections, participants demonstrated skillsets consistent with those suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Building and engaging teams of stakeholders and identifying stakeholder needs were skills all five participants reported actively employing in their sustainability leadership. All five participants also reflected on their engagement with complex problem solving, particularly in service of challenging the status quo. All five participants demonstrated high emotional IQ, particularly in terms of self-awareness and understanding how their leadership practice had evolved. Finally, when speaking about their own practice or the practice of leaders they admired and would emulate, all five participants spoke of the power of communicating an inspiring mission and of demonstrating the integrity of a systems mindset.

In conclusion, this study suggests that student sustainability leaders are motivated by a clear moral imperative to make the world more sustainable for future generations and a belief that all systems are interconnected and interdependent. This moral imperative compels student sustainability leaders to seek out ways to engage their campus and local communities and develop solutions that they felt would have an impact both in the present and in the future. Student leaders often do this work without any academic reward or recognition, operating most often in the extracurricular space. In essence, they do this work not only for themselves, but in service of a more just present and for future generations who will inherit the results of today’s decisions.

Successful student sustainability leaders exhibit the self-awareness needed to position themselves within the hierarchies that exist in higher education settings. They also exhibit the critical thinking skills needed to navigate and assess that hierarchy.
Successful student sustainability leaders identify and collaborate with allies within that hierarchy, building impactful coalitions between their peers, faculty, staff, and administration where possible. However, when faced with opposition from institutional leadership, successful student leaders will find ways to adapt their approach and challenge that opposition. As a result of this keen sense of self-awareness, student sustainability leaders persist in the face of opposition and skillfully navigate institutional hierarchies.

Finally, successful student sustainability leaders exhibit a cluster of shared leadership skills that are grounded in a systems mindset. These skills, derived from traditional leadership models, must be underpinned by a mindset that emphasizes the interconnectivity and interdependence of systems in order to help challenge and change pervasive anthropocentric mindsets. This skills cluster - engaging teams and stakeholders, identifying stakeholder needs, demonstrating a high emotional IQ, engaging in complex problem solving, challenging the status quo, communicating an inspiring message, and demonstrating the integrity of the systems mindset - is foundational to successful student sustainability leaders in this study.

**Implications for Sustainability Education Design**

The purpose of this study was to understand the motivations of student sustainability leaders and the skillsets they used in their work, in order to inform the design of sustainability education programs and initiatives in higher education settings. The data suggests that providing experiential, problem-based learning as well as peer and supervisory mentoring as part of sustainability education is of high value and that the
skillset suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell
and Little (2015) can be used to build learning outcomes, experiences, and assessments.

Winter and Cotton (2012) wrote of the trend in higher education of providing
sustainability education through noncurricular pathways:

In response to the limitations posed by academic attitudes and disciplinary silos
which hinder the embedding of sustainability literacy in the formal curriculum,
enthusiasts have increasingly turned to other spaces where students share access
and experiences, the most prominent of which is the university campus. (p. 785)

This study’s data suggests that such experiences had significant impact on the
participants. All five participants spoke strongly about the power of experiential
learning, like internships and extracurricular leadership opportunities. In contrast, very
few spoke of the influence of course work on their sustainability practice and leadership.

Molly’s reflection provides a key insight into how the curricular space can
become more impactful for student sustainability leaders. She described her capstone
project experience as being particularly significant in helping her build skills such as
stakeholder engagement and communication. She also reflected that the project appealed
to her motivation for her work to have a real-world impact. Her project, designing a
transportation plan for her campus, is an example of how effective sustainability
education can be built into a higher education curriculum through experiential and
project-based learning.

This study also suggests that providing peer and supervisory mentoring would be
of value for emerging student sustainability leaders as part of a sustainability education
program. All participants spoke about the role of mentors or mentoring as part of their
growth as sustainability leaders. In particular, they spoke about the power of seeing others lead by example, be it by diving into dumpsters to retrieve recyclables or by demonstrating how to communicate hope to a diverse group of stakeholders. Several participants also spoke of their role as peer mentors as part of their practice. If designed into sustainability education programs, mentoring can not only provide learners with the examples they need to help chart their course, but also ensure that the next class of campus leaders will have mentors to emulate.

Finally, this study suggests that the cluster of leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015) should be used to design learning outcomes, experiences, and assessment. These skills are: engaging teams and stakeholders, identifying stakeholder needs, engaging in complex problem solving, challenging the status quo, demonstrating high emotional IQ, communicating an inspiring message, and demonstrating the integrity of the systems mindset. All five participants spoke about the power of these skills in either their own practice or in the practice of a sustainability leader they emulated. This skillset is related to, but different than, transformational leadership in that it is combined with and driven by a systems mindset. When designing a sustainability education program, the mindset that lies behind the application of skills will be as crucial as the skill set itself.

**Suggested Research**

The study indicates several areas of potential inquiry. First, it is important to note that while all the mindset codes were well represented in the collected data, two suggested elements of the systems mindset were not as strongly represented. The researcher suggests reexamining and redefining “spiritual view of nature - nature
provides food for human souls” into “spiritual view or personal connection to nature,” as was done in the cross-case analysis. This new definition encompasses a larger role for nature that would stand in opposition to the associated anthropocentric mindset of “nature as a tool for human advancement.” The validity of that new definition would need to be confirmed by subsequent study.

Similarly, the researcher suggests reexamining and redefining “biosphere at the center - the biosphere is the preeminent concern.” The use of the words “center” and “preeminent” do not align with the participants’ systems view, which emphasized interconnectivity, interdependence, and equity among human and nonhuman systems. A new definition that better reflects a systems mindset would need to be confirmed by subsequent study.

The researcher also suggests subsequent study of the role of intersectionality and justice in student sustainability leaders’ mindsets. Several participants spoke of the centrality of justice in their work. The two male participants were particularly clear in expressing their self-assessed privilege in society and in the sustainability realm. Both made the elevation of new, underrepresented voices a pillar of their leadership practice. An investigation of the role of intersectionality of social systems and causes within the sustainability leadership mindset may be of value as higher education institutions continue to develop new learning experiences, outcomes, and assessment.

Finally, the researcher suggests that a mixed methods study that leverages both qualitative and quantitative data could confirm and build on these findings regarding the mindsets and skill sets of student sustainability learners. A combined interview and survey study using a larger sample of participants from a broader range of institutions
may yield data that not only confirms this study’s findings but also validates their application across the higher education ecosystem.

**Policy Implications**

This study has two key implications for higher education policy at the institutional level. If institutions are to fulfill their expressed commitments to agreements like the Talloires Declaration or Second Nature’s Presidents’ Climate Leadership Commitments, they must model sustainability as an institutional priority that cuts across disciplines and silos. The institutions from which this study’s participants hailed were all nationally recognized for their level of sustainability commitment. Yet each had effectively siloed sustainability within a specific curriculum or in a related center. McMillin and Dybal (2009) wrote:

> Sustainability education in most universities is generally confined to specific courses, education is not necessarily linked to research, and both education and research are separate from campus operations. This fragmentation squanders an opportunity to leverage improved outcomes from the time and resources invested in sustainability initiatives. (p. 56)

As the participants indicated, their work cuts across silos and disciplines. Their work required an understanding of and facility with multiple systems: economics, environmental science, social science, human health, etc. By isolating sustainability education in a single focused program or center, institutions create an obstacle to the transdisciplinary sustainability education their learners need. Furthermore, basic systems thinking should be a foundation of learning and practice. Sustainability across the curriculum can only work well if faculty and students apply the learning framework of
systems thinking to all dimensions of true human societal sustainability. Creating a policy of integrating sustainability and systems thinking as themes across the curriculum and cocurriculum so that all students are exposed to the interconnectivity of systems would be of great value to institutions that are committed to sustainability education.

A second implication of this study is that higher education institutions must reexamine their priorities, policies, and practices across the entirety of their systems in order to ensure that sustainability becomes part of the fabric of their college or university culture. Thomashow (2014) wrote, “Even the best-intended sustainability initiatives can get lost in a long list of institutional priorities, or subsumed in a less influential department, or buried by the contingencies of daily campus management” (p. 15). Several participants reflected that, despite the existence of centers for sustainability on their campuses, they often found opposition when looking to institutional leadership for support for sustainability initiatives. Leaders cited higher priorities, often linked to economic concerns. As the participants suggested, the power of example is key to sustainability leadership. It is imperative that institutions committed to sustainability education model the systems mindset they hope to inspire by placing human and nonhuman systems on equal footing when making short- and long-term decisions. In this way, the institutions themselves become models for effective and impactful sustainability leadership.
References


National Environmental Education Advisory Council. (2005). *Setting the standard, measuring results, celebrating successes: a report to congress on the status of environmental education in the united states*. Retrieved from https://nepis.epa.gov/Exe/ZyNET.exe/20017F9F.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&EndTime=&SearchMethod=1&ToRestrict=n&Toe=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmIQuery=&Field=D%3A%5Czyfiles%5CIndex%20Data%5C000 thru 05%5CTxt%5C00000010%00%5C20017F9F.txt&User=ANONYMOUS&Password=anonymou$&SortMethod=h %7C&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150v150g16/1425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL


Appendix A

Interview Protocol

Interview 1 - Focused Life History

How do you define sustainability?

How did you arrive at that definition?

What was your first experience with or exposure to sustainability practice in your own life?

What role, if any, did sustainability practice play in your life prior to college?

Consider a leader whom you would follow. Why would you follow her or him?
What qualities and skills does she or he have that you feel are most effective?

Interview 2 - Details of Experience

What inspires you to lead for sustainability?

How would you describe the context in which you lead for sustainability?

What are some of the initiatives you have pursued on behalf of sustainability in your college community?

What motivated you to pursue those initiatives?

Who were the stakeholders in that initiative? How did you interact with them?

What were the skills you used to engage those stakeholders?

How did you acquire those skills?

What was the goal of that/those initiatives and were they achieved?

Interview 3 - Reflection on Meaning

What role do you anticipate sustainability practice playing in your life?

What role do you anticipate sustainability leadership playing in your life?

How do you imagine applying the sustainability leadership skills you have acquired?
How has your definition of sustainability changed, if at all, through your leadership experience?

What skills do you still hope to acquire? How do you hope to acquire them?

If I were to ask a colleague of yours to describe your leadership style, what would she/he say?
Appendix B

Sample Letter: Consent to Participate in Interview

You have been asked to participate in a research study conducted by Holly Parker from The Muskie School of Public Service at the University of Southern Maine. The purpose of the study is to deepen understanding of how student advocates have catalyzed education for sustainable development efforts on college and university campuses, what motivates student sustainability advocates and what leadership qualities and skills have they used to transform complex higher education cultures. The results of this study will be included in Holly Parker’s doctoral dissertation. You were selected as a possible participant in this study because your work on behalf of sustainability issues on your campus has been recognized by a national organization, including Second Nature or the American Association of Sustainability in Higher Education. You should read the information below, and ask questions about anything you do not understand, before deciding whether or not to participate.

• This interview is voluntary. You have the right not to answer any question, and to stop the interview at any time or for any reason. The three-part interview process is designed to happen over the course of three weeks, with each interview lasting approximately 90 minutes.

• You will not be compensated for this interview.

• Unless you give us permission to use your name, title, and / or quote you in any publications that may result from this research, the information you provide will be confidential.
- I would like to record this interview so that I can use it for reference while proceeding with this study. I will not record this interview without your permission. If you do grant permission for this conversation to be recorded, you have the right to revoke recording permission and/or end the interview at any time.

- This project will be completed by August 2019. All interview recordings will be stored in a secure work space until August 2020. The tapes will then be destroyed.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

(Please check all that apply)

[] I give permission for this interview to be recorded.
[] I give permission for the following information to be included in publications resulting from this study:

  [] my name      [] my title      [] direct quotes from this interview

Name of Subject ___________________________

Signature of Subject ___________________________ Date __________

Signature of Investigator ___________________________ Date __________

Please contact Holly Parker at holly.e.parker@maine.edu with any questions or concerns.
Appendix C

Sample Recruitment Email

Greetings.

My name is Holly Parker and I am a PhD candidate at the University of Southern Maine. I am conducting a dissertation research study about student sustainability leadership in higher education settings. You have been referred to me as a possible study participant because of your work as a sustainability leader at XXX. I am emailing to ask if you would like to take part in this study. The study requires participants to commit to three, one-hour interviews to be conducted via Skype or Google Hangout. Participation is completely voluntary and your answers will be anonymous.

If you are interested, please contact me at holly.e.parker@maine.edu. If you have any questions as you consider your participation, please do not hesitate to be in touch.

Thank you for your time.

Holly E. Parker

PhD candidate, University of Southern Maine
Appendix D

Case Study 1 - Sarah

Background and Definition of Sustainability

Sarah is a 24-year old second year law student at a large, Southern land grant university. The university has 28,000 students, with 23,000 undergraduates. Sarah graduated from the same university in 2016 with a B.A. in Sociology. The university has an Office of Sustainability that manages on campus initiatives; it offers an undergraduate sustainability major and minor, a certificate in sustainability science, and a PhD program which focuses on sustainability data and energy. Sarah was recognized by Second Nature for her work to establish a food pantry to serve students and members of the university community, a project which has outlived her graduation and is still a key part of the university’s sustainability portfolio.

Sarah views sustainability as a deeply interdisciplinary endeavor that extends beyond environmental concerns to those of the people impacted by natural resources use. “Sustainability is about so much more than just recycling or using reusable products. It's really a lifestyle in which individuals and larger entities, businesses, communities, consider the impacts of their own existence on future generations - and not only future generations, but other groups of people in the present.”

Sarah’s definition of sustainability demands that individual, institutional and community decisions must be taken through a lens which considers present and future impacts on a broad range of stakeholders. As a sustainability leader, Sarah helped these stakeholders see that sustainability isn’t merely the purview of environmentalist, but that all disciplines and sectors must play a role in the responsible stewardship of our resources.
Pre Higher Education Experience

From the time she was five years old, Sarah lived with her mother, stepfather and sister. She also has two half-brothers and stepsister. Sarah began developing her sustainability ethic and leadership skills while in high school. She credited a mentor, her 9th grade biology teacher, for inspiring her own exploration of sustainability. "My biology teacher was very eco-friendly, very connected with nature and the environment, and I knew it was important to her. She was also the person who led me by providing information." Sarah's natural curiosity led her to explore how systems such as animal agriculture lead to waste and pollution. She began taking on a leadership role in her school, focusing her attention on paper recycling as a way to make an impact in reducing waste.

I was the person who would make sure to get the people together to take them out to the recycling bin and go around to the classrooms and take the paper out of the trash cans and put them in the recycling bin. Even in something small like that, I found value in it at a young age. And then, it sort of piqued my curiosity about ways to do more good.

She became a vegetarian and began thrifting, buying her clothes and even luggage second hand.

Sarah’s increasing engagement with sustainability projects at school, as well as her personal choice to become a vegetarian, was not aligned with her family traditions. Growing up in the South, Sarah found that choosing to be a vegetarian was initially met with questions.
The vegetarianism was very new. Because my family's very southern and so meat is an important part of food culture. So my mom was like, ‘Why are you doing this? Why do you care about putting paper in the recycling bin? It probably just all goes to the same place, anyway.’

Despite her family’s initial skepticism, Sarah persisted in developing her sustainability practice. Her dedication began to have an effect on her family.

I started to see those attitudes change over time, too. I remember as a kid going through the drive-thru and my mom would like toss the straw wrapper out of the window. But I started getting onto her about little things like that. And now she takes a bag and like picks up litter on the side of the roads by our house.

Sarah’s early focus on resource use and waste began to help her shape the value system which would come to be the foundation for her emerging sustainability leadership practice. She looked for a higher education institution that would provide her with a community that shared those values.

**Higher Education Experience**

Sarah’s commitment to a personal sustainability practice and her role as a leader in her higher education setting was inspired and informed by her university community. When she arrived at university she sought out and found a community that supported the values and practices she had begun developing during high school. “Once I got to college, I surrounded myself with a community of like-minded people, and then that was really where things took off.” Beginning her freshman year, she committed her time, skills and effort to several university sustainability campaigns, beginning with a years long fossil fuel divestment effort. It was not an easy place to start. The political landscape
was complex. Despite having an office dedicated to sustainability, the university leadership was deeply resistant to fossil fuel divestment. To counter that resistance, Sarah built a diverse set of invested stakeholders from across the campus community. “We were out every day getting student signatures, and doing research, and getting professors to work with us and write papers, and present really a unified front.” The administration remained opposed.

Despite that setback, Sarah persisted, growing her stakeholder group and increasing the pressure on university leadership through giving voice to those impacted by the fossil fuel industry. She illuminated how the university’s investments impacted the lives of those living in surrounding communities. She invited speakers from surrounding mining communities to come to campus and share how the fossil fuel industry affected their communities and lives. The university would not budge. After two years, Sarah had to make a choice. While her dedication to the campaign was unwavering, it was becoming increasingly hard to rally stakeholders against the institution’s resistance. With other sustainability initiatives gaining more traction, she had to decide where her and her team’s resource would be best spent. She chose to end the campaign, understanding that new university leadership would be needed before progress could be made.

Sarah reflected that her skills as a leader were deepened by her experience and failure. She learned that how she frames her arguments for more sustainable practices must be informed by the needs and values of the stakeholder. Understanding and addressing multiple points of view, even those of your perceived antagonist, are key to her sustainability leadership practice. “...going into that meeting [with the chancellor], I
wasn't saying what I said to students walking down the sidewalk on their way to class.” When speaking with leadership, Sarah used her research and analysis skills to show that the university did not need fossil fuels in its portfolio and that it was falling behind its peer schools that were divesting.

As she worked on the divestment campaign, Sarah led several other sustainability initiatives. Food and food security became a theme of her work. Initially, as part of the Real Food Challenge - a national organization that works to “leverage the power of youth and universities to create a healthy, fair, and green food system” - she engaged with the university’s food services provider to identify sources of food and then to advocate for local and transparent sourcing, as well as an increase in food that is sustainably produced (Real Food Challenge, 2018). Again, she did not find much support from the administration in her efforts and was unable to obtain the data she asked for from the food services provider. However, her efforts did result in that data being made available to the Office of Sustainability.

That experience led Sarah and a peer leader to consider the role of food security in sustainability. As she had with her work on the divestment campaign, Sarah first relied on her research skills to begin the food pantry project. She discovered peer schools that had similar initiatives and provided different options for locations and hours, as well as operational models. She framed the food pantry as a double win - a way to serve the food needs of the community and reduce waste. Sarah petitioned to have space in a new student center committed to the project. Again, she had to persevere through initial resistance and obstacles. Despite the construction of a new student union, the administration said it had no room for a food pantry.
However, Sarah’s previous engagement with this administration was key in garnering some support for the food pantry idea. “We didn’t get a physical location out of that meeting, but he did say, ‘If you can figure out a way to do it close to campus, you’ll have the full University's support.’” She submitted a request and was awarded funding through the sustainability office.

As with previous projects, Sarah looked to identify and build a strong coalition of stakeholders from across the community. She reached out to the LGBTQ resource center, providing data that LGBTQ students are disproportionately low income and food insecure. She reached out to the campus ministry and discovered that that group had also researched building a food pantry and that it had secured the space for the project, but had no other details worked out. From her extensive research, Sarah had those details. “The food pantry opened January of my senior year. It was amazing. We painted the walls, got it looking all nice, 'cause we really wanted it to be a place where people felt welcome and comfortable. ‘We put time into this because you're valued.’” The pantry provided food for more than a dozen students its first night. Two years later, the pantry is still welcoming and feeding students in need.

Sarah’s final leadership endeavor was to coach the next generation of leaders. She notes that turn over in student sustainability leadership is, by nature, high. She was determined to build leadership succession in order to maintain the coherence and continuity of the work. She tried to sit down with emerging student leaders and understand their motivations and aspirations for their sustainability work.

Through those one on one relationships, I guess I would consider them like a mentor relationship, and just keeping people very plugged in saying, ‘Here's what
we tried two years ago, here's why it didn't work. You don't have to do it. You can try it again if you want, you don't have to do the same things I did, but just so you know, here's what I've learned. Take it and do something, like roll with it.'

When Sarah graduated she was able to hand the student sustainability leadership reins over to well-informed and committed leaders and focus her attention on her next step: law school.

**Post Higher Education Experience**

After her experiences as a student sustainability leader at her university, Sarah has found that sustainability practice and leadership are central to her life and her career ambitions.

So being a law student I kind of constantly am thinking about balance in my life. And so my prioritization of sustainability practice is something that helps me focus in on that balance that I need. And then that kind of lends itself to be finding balance with health, and activity, and leisure a little bit. Just staying as an individual well rounded so I'm able to continue providing for others.

She is particularly aware of how she buys food. A trip to the grocery store is an exercise in sustainability practice. She thinks about where her money is going, if she has her reusable bags in the car, is the produce in season locally or is it being shipped from a great distance, if she can buy local vs. at a big box supermarket chain?

As she prepares to be a criminal defense lawyer, Sarah has a particular interest in how criminal/social and environmental justice intersect. She hopes that she can make that intersection a part of her legal practice. She also envisions continuing to work with Appalachian communities as an advocate for sustainability. She has worked on
developing policy that could help empower communities to make their own decisions regarding resources.

It's about so much more than the water, or the air. You know, it's about the people who live in these communities and want to thrive in these communities, and, you know, deserve the chance to, to be autonomous, and to decide the path for their communities moving forward.

One way of connecting with communities and stakeholders is by building trust. She credited a colleague, who had passed in the last year, with helping her realize the power of this skill. “She wouldn't lead by, by being the loudest in the room, or by being the most wealthy or influential in the room. She leads by being, just, inherently, I think, the leader that we would need. Someone who's relatable, and who I trust.”

Sarah acknowledged that she has evolved as a leader and that some skills and qualities did not come as naturally to her as her success would indicate. She described herself as introverted, which would likely come as a surprise to anyone who had witnessed her speak at a rally or engage with community members in a rural community center. She also recognized that while her sustainability practice and leadership began with a passion for environmental justice, it has grown to encompass a systems approach that centers on the impact decisions have on the people of the place both in the present and future.

**Systems Mindset**

*Interconnectivity and interdependence of systems*

In her reflection on her lived experience, Sarah made reference to the interconnectivity and interdependence of systems, a key component of the systems
mindset suggested by Schein (2015). Indeed, Sarah was quick to eschew any label that might silo her work. “I don't consider myself exclusively an environmentalist.” The interconnectivity and interdependence of human and non-human systems is a theme that resonates throughout her recalled experience. Sarah’s work with coal mining communities during her university’s divestment campaign helped frame that point of view.

Over the course of this region’s history, companies knew that we have a wealth of rich environmental resources and would come in, dig them all up, and just leave. And that created this entire myth of dependency on really harmful extractive practices and shaped the way entire communities developed or misdeveloped or maladapted. So we're looking at ways to address the pollution that has been caused in these communities- in the ground water, and in the air, from all of the toxins - we also think about how these communities are left incredibly cash poor, and just thinking about economic justice.

Sarah expressed a belief that the impacts of resource mismanagement have left these communities polluted and lacking the infrastructure to diversify their economies and rise out of poverty. She perceived a deep connection between human health - including social and economic health - and environmental health.

Sarah’s work on food security further reflects this interconnectivity of systems. As she developed her plan for a campus food pantry, she saw the opportunity to address not one isolated problem, but two interconnected problems.

...I don't think people think about food pantries as being a sustainability initiative, but you know, that's a whole segment of people that you can reach if you say,
We want to prevent perfectly good food from going into a landfill, and instead use it to feed people.' What an incredible concept!

By seeing the food pantry project as an opportunity to address both a natural resource challenge - reducing waste - and a social and human health challenge - reducing food insecurity on campus - Sarah demonstrated a key element of the systems mindset - the interconnectivity of systems.

Sarah credited her undergraduate major for helping her develop a systems mindset. “I was a sociology student in undergrad, so I, that really gave me an opportunity to think about how everything is interconnected.” Her work to integrate different stakeholders from across the university and its surrounding community spoke to the interconnectivity of human systems - social and economic. In developing the food pantry, she brought together student leaders from across campus to build much needed political and practical support. In addition to bringing on campus ministry, she reached out specifically to student leaders who represented the community’s underserved or most vulnerable. In recognizing the intersection of need and opportunity represented by the food pantry project, Sarah effectively leveraged the power of many to accomplish a complex sustainability initiative. “We actually show up for other people fighting for other things because we don't have enough people power on our own. So [it’s important], making people see the connections between sustainability and economic justice, and gender equality, all of the intersections.”

Biosphere at center

While interconnectivity is a strong theme in Sarah’s reflection, she did not place a strong emphasis on the biosphere being the central or more heavily weighted concern
among those systems. She did point out that natural resource use, however, must be of vital concern to her as a leader. “I consider my role as a younger sustainability leader to be in broadening what sustainability means to people and bringing in more interdisciplinary perspectives. And saying if we're gonna fight for sustainability we want to fight for responsible uses of resources.” While her language did not explicitly place the biosphere at the center of decision making, she clearly placed a high value on the biosphere through her emphasis on responsible resource management. This position stood in sharp contrast to an anthropocentric mindset that places human systems at the center of decision making.

Understanding of non-human systems

Sarah demonstrated a deep understanding of non-human systems. Sarah began her sustainability leadership journey in high school with a sharp focus on the biosphere; she was deeply concerned about waste and the cruelty of large scale animal agriculture. As a result she made lifestyle changes that hold today.

I became a vegetarian when I was a freshman in high school because she [my teacher] showed a video about animal agriculture and I was very upset by that and did a lot of research. I went home and I read and read about not only about animals, but about the water pollution, and about how intensive animal agriculture and even plant agriculture is on resources. And I read about just various other ways that we waste.

Sarah remains a vegetarian and has reduced her own consumption of goods and resources and is committed to recycling. However, Sarah’s perspective has shifted as a result of her work in university. “If I could go back and tell early sustainability leader [Sarah] how
I think about sustainability now, it's just really evolved into an understanding that if what you're doing doesn't include and center around affected people it's really not the right move.” Sarah now approaches sustainability through a more evenly balanced lens of biosphere and humanity.

**Spiritual view of nature**

Sarah did not explicitly link nature to a spiritual role in her life - she does not express, as Schein (2015) suggests, that nature feeds her soul. However, she did contradict Schein’s (2015) anthropocentric mindset component that nature is merely a tool for human advancement.

We have so many resources and I mean, our institutions are just overflowing. In America especially we have such a capacity to do so much more good. And just this false reliance on constant growth, just exploiting productivity I don't buy that it's necessary. Especially when people are struggling and our resources are being depleted. And communities are suffering.

While Sarah did not explicitly embrace the idea of nature as spiritual sustenance, she does stand opposed to the anthropocentric idea that nature is merely a tool to advance human systems.

**Sustainability Leadership Skill Set**

**Engaging teams/stakeholders**

Sarah’s reflection on her leadership practice evoked many of the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Sarah’s development of the food pantry demonstrated the engagement of stakeholders and building of teams from across sectors of the university
community. Sarah said, “Nothing we do as individuals is going to be as powerful as if we all do it together.” Sarah successfully engaged student leaders from campus ministry and the university’s LGBTQ community is building support for the initiative. In addition, she had to work with members of the university’s administration to create the institutional support for the project. She recalled meeting with administrators who were unable to lend the support she had hoped for, but were able to help move the project forward. While she did not always get the level of commitment she initially thought, she built enough of a coalition to create the food pantry which still serves the community to this day.

Sarah’s work as a university sustainability leader compelled her to not only build teams of university stakeholders, but to invite and activate team members from outside the university community. When leading the fossil fuel divestment campaign, Sarah organized on campus demonstrations that leveraged the stories and experiences of community members directly impacted by fossil fuel exploitation.

The first demonstration I ever organized was as part of that campaign. We had a rally and a march, and we invited invited people from mining communities, paid for their transportation, gave them the mic, let them tell their stories at the rally, saying here's what's happening, we can't see it from the comfort of our campus, but here's what's happening all around us and our University is complicit in it. In expanding the stakeholder group to include those impacted by university decisions regarding fossil fuel investment, Sarah strengthened her team and its message. While the fossil fuel divestment campaign ultimately failed, Sarah took that strategy forward into her current work developing sustainability policy while in law school.
Sarah continues to work with Appalachian communities as a law student, offering expertise on developing local policies. She purposefully embeds herself with the community to help build the trust needed for a strong team.

I wasn't sitting in Nashville researching and writing a bill and doing that, I was at the community meetings. I was at the table, you know, sharing in victories, and sharing in losses and concerns and worries, and having dinner with community members and asking about their families and really becoming a part of what was happening. So building that trust- and building a relationship where they can say, here's what I need you to do or here's a problem, do you have any suggestions? What do you think would be the best? And then just really getting close to the people and keeping up that relationship.

Sarah's approach to sustainability leadership is grounded in engaging stakeholders in their own environments and building trust. In her current work in developing policy, this allows her to use her community team to inform the policy and to create buy in at the local level.

Also, in reference to her current work while in law school, Sarah spoke directly to the power of teams in developing impactful sustainability policy.

One thing that is really important in being a leader in my community, and in Appalachia I think in general is, because of the exploitation we've experienced we're really wary of outsiders, and people coming in and saying, 'Here's what I think you should do about this, and here's what will help you get out of this struggle that you're experiencing.' So I think people, leaders coming from within
the community and saying, 'I'm hearing this is what you need, here's how I can help support that' that's really how I think change is gonna happen for us.

Sarah’s emphasis on the power of teams that cross sectors and stakeholder groups was developed through her work at university and continues to inform her work in law school and the larger Appalachian community.

**Identifying stakeholder needs**

Identifying stakeholder needs is key to Sarah’s success in building and engaging stakeholder driven teams. Sarah indicated that even the fossil fuel divestment campaign taught her the importance of understanding stakeholder needs. She learned to frame her argument for divestment based on what a particular stakeholder valued. When speaking with the university chancellor, she framed her argument as one of competition - that the university was falling behind other peer schools moving towards divestment.

I said, ‘We've analyzed [the university’s] portfolio and we don't need fossil fuels to get a return on our investments.’ ‘Here's how many students really care about this, and it's your job to listen to what students are saying, and here are some stats on sustainable energy sources, and you want [the university] to be a leader. Well, [the university] is falling more and more behind, the longer that they put this off.’... So different skills appeal to different stakeholders. You know, not everyone I talk to is impressed that I can hold a conversation with them. Or that I care about their background and their motivations. Some people it’s only about numbers. Some people it's only about returns.

In contrast, when speaking with students, Sarah framed the argument differently, arguing from a moral stance about the destruction of the planet and impact on communities, an
argument that resonated with that particular audience. Sarah used listening skills and empathy to understand stakeholder perspectives in her leadership approach as a way of identifying stakeholder needs and building the teams needed to take productive action.

Speaking effectively to stakeholder needs is a skill Sarah continues to rely on as a law student advocating for local sustainability policies. She recently worked on a piece of legislation governing oil and gas severance taxes and had to pitch the policy solution to a local county commission in an effort to gain its political backing.

I didn't say anything about all of the destructive practices of the extractive industries. I didn't talk about air pollution or water pollution. But I talked about [how] the state is making money off of your resources, and you're not. And I know that this community would love that extra revenue and here's a mechanism we can use to get that revenue. I think it would have been a much harder fight to reach the same ends using different language, and different messaging.

She got the support of the county commission by identifying and speaking to the specific need and interests of the stakeholder.

Sarah demonstrated humility in her efforts to identify stakeholder needs. Even as she has accumulated knowledge and skills through her education and experience, she is quick to defer to the needs of the stakeholders as a leader and organizer.

You can't just come into a community and say, like, 'I have these skills and this experience, let me help you.' It's more about let me amplify what you're doing, or what you want. I think an important skill is organizing with the desires of affected people in mind. Not just having a rally and a march because we want to, but because it's something that we can use to amplify concerns that are coming
from affected communities, which I think as a new activist I didn't really think about that.

In an effort to build the teams needed to successfully design and implement sustainability solutions in her community, Sarah demonstrated that identifying and speaking to stakeholder needs is a key leadership skill.

**Demonstrating high emotional IQ**

Throughout her reflections, Sarah demonstrated high emotional IQ. Her ability to empathize with stakeholders, as previously discussed, spoke to this skill. In addition, she was able to reflect on her own growth as a sustainability practitioner and leader and the role her personality, education and community have played in her evolution. Sarah credited her stubbornness as a key factor in developing her commitment to sustainability. She recalled, “I thought I knew everything” as a teenager, which did help her persevere with her sustainability practice in the face of her family’s skepticism. While Sarah approaches her practice and leadership from a more humble perspective - she no longer thinks she knows everything - her commitment to sustainability causes has remained, largely in part to the community she found at university that supported those values.

I think coming to campus and finding a community in the environmental realm meant ... it meant a lot to me because I came from a very small school, and when I came here I found a place where I fit and where I felt comfortable, and that allowed me to feel connected with my campus, and to feel invested in it. Because of that, I wanted to do what I could to make it better.

Connecting with fellow sustainability advocates and stakeholders requires a high emotional IQ. Sarah reflected that being a mentor for emerging leaders in the university
as she came to the close of her undergraduate career was a way of ensuring that the work moved forward through her personal connection with younger students.

It was something that also just felt natural to me, to connect more closely with people who are embarking on this kind of difficult thing with you. I would meet them for coffee and just kind of get a sense of who they were, and why they wanted to do environmental work, or what it was that they wanted to see in their next three, four years on campus, and try to just always keep all of that in mind.

Sarah admits to being introverted, even shy, and yet sees how she has grown to be the leader with the megaphone in her hand. “I think before I started in environmental work I was very shy, quiet, never thought I would be holding a megaphone, yelling about corruption, the destruction of our planet, and I think that is an important skill, especially as an introverted person, as someone who gets exhausted from all of the social interaction and all of that.” Sarah recognized that she needs to recharge after working on a project. She credited her sustainability practice with bringing much needed balance to her life.

Sarah’s lived experience as a sustainability leader demonstrates high emotional IQ - including the ability to reflect on her own strengths, weaknesses, needs and evolution as a leader.

**Engaging in complex problem solving**

Sarah’s reflections also demonstrated her ability to engage in complex problem solving. The fossil fuel divestment campaign, as described previously, was a tangle of stakeholders, needs, and perspectives. She conducted extensive research, reframed arguments to suit stakeholder perspectives and organized rallies. Ultimately, Sarah made
a choice to end the campaign. However, doing so was a careful calculation rather than an emotional decision.

It basically came down to a cost benefit analysis. We would have this amount of work to do, and would, you know, almost never achieve what we wanted to achieve by doing that work right now, so we kind of had to come to the conclusion that you know, maybe this is something for a different chancellor, or for a different moment in time, which is hard. I think it was the right decision.

Sarah’s successfully used the same complex problem solving skills of research, team building, and listening to create a food pantry for the university community. I remember starting the process, again doing that research, looking at southeastern schools that have food pantries, getting some really good examples from other universities, thinking about different options we would have about locations, and hours, and how to donate, how to get support for across campus, and how to pitch the idea to different groups.

Sarah initially approached university leadership to petition for space in the new student union to be dedicated to the project. While the university did not ultimately provide the space, her well-reasoned argument about the link between sustainability and student food security did earn her some funding support from the university’s office of sustainability.

Sarah then set about building the coalition of student support needed to build, run and attract students to the food pantry. She found a powerful partner in student ministry. I ran into an old friend at some presentation on campus and was catching up with her, and I was like, ‘Yeah, I’ve been trying to start this food pantry lately.’ She was like, ‘No way, the student ministry where I work has been trying to start a
food pantry. We have the space, but we don't really know past that.’ I was like,

‘Oh, I have everything except for the space.’

The combination of the student ministry’s physical space with Sarah’s detailed research about how to build and run a campus community food pantry was powerful. Over the course of a semester, the team built out the food pantry, stocking its shelves, painting walls and creating a welcoming lounge area where students could meet, do homework and relax while their food security needs were being met. The pantry opened January of Sarah’s senior year.

Having the student ministry be a part of it was incredible ... that was a game changer because they had these people who were willing to help, it was constantly supervised, and just the capacity was something I wouldn't have been able to accomplish with just a student group.

Sarah was fearless in engaging with a complex problem. She used research and analysis skills to convince the university to commit some resources, made connections with other student groups to broaden the initiatives’ impact, and created an evidence-based operations model to launch the project.

Finally, Sarah pointed to the importance of acknowledging and learning from mistakes as part of complex problem solving. “And I think another important part of that is we need to remember what we've done in the past, and the mistakes we've made, and, you know, the things we've tried that haven't been effective.” Of her work at the university and in subsequent work while in law school, she spoke to the importance of researching past initiatives. Her role as a mentor, previously discussed, also spoke
towards helping emerging leaders understand the role of past mistakes in informing current complex problem solving.

**Challenging status quo**

In her reflection, Sarah demonstrated an ability to challenge the status quo when speaking of her interactions with her family as a young adult. Sarah became a vegetarian after her biology teacher showed her a film on commercial agriculture. She also became vocal about her beliefs in recycling and resource management. It was not a lifestyle choice that aligned with family tradition. “Because my family’s very southern meat is an important part of food culture. My mom was like, ‘Why are you doing this? Why do you care about putting paper in the recycling bin? It probably just all goes to the same place, anyway.’” Sarah’s self-described stubbornness served her in challenging the status quo. She has seen a change in her own family’s beliefs and actions.

I started to see those attitudes change over time. I remember as a kid going through the drive-thru. My mom would toss the straw wrapper out of the window. But I started getting onto her about like little things like that. And now she takes a bag and picks up litter on the side of the roads by our house.

Through her own choices and actions, Sarah challenged the status quo within her family. Her persistence inspired her family to make similar changes.

Sarah’s first action as a sustainability leader and advocate in her university community was a direct challenge to the status quo. The university had significant, long-standing investments in fossil fuels. These investments were core to the university’s financial strategy. Sarah rallied the support of students and faculty to pressure change.
The administration, they wouldn't hear it. I remember the only in person meeting I ever had with our chancellor was about the divestment campaign, and I just remember him talking over me, and saying kind of in a sarcastic way, ‘Where are you from?’ I said, ‘I'm from Middle Tennessee.’ He's like, ‘Okay, well how did you get here?’ He just sets you up to say ‘I drove here’ and he's like, ‘Oh well, you drove here so we need fossil fuels, 'cause what did you put in your car? You didn't put wind energy in your car.’ It's the same old tried and tired ... just resistance. It's also belittling. We're trying to make something better for the students that are going to come after us, and yeah, but it just wasn't much sympathy for them.

Despite this resistance, Sarah and her peers persisted for two years, building teams of students, faculty, staff and community members who shared their stories about how fossil fuel extraction and exploitation had affected them. As previously discussed, Sarah made a calculated decision to end the campaign when it became clear that university leadership would not budge on the issue. Through her actions, Sarah demonstrated a commitment to challenging the status quo.

While the food pantry initiative appeared to be a clear win for the university community, combining both impacts on sustainability and food security, Sarah again had to deal with some resistance from university leadership while developing the project. “Nobody thinks having a food pantry is a bad idea, just across the board, but there was pushback.” She met with an administrator who told her that there was no space on campus available for the project, even in the newly constructed student union. She continued to press her case, using detailed research to show the value of the project.
While Sarah was unsuccessful in getting institutional commitment to provide space for the project, she was able to secure some financial support through the office of sustainability and move the project forward to a successful conclusion.

**Communication of inspiring mission**

Sarah spoke of the role of storytelling in building coalitions and teams. The role of storytelling to communicate an inspiring mission became clear to Sarah through her work with a mentor. She described her mentor as “authentic”, “rooted in history”, “relatable” and “trustworthy.” She also reflected on her mentor’s ability to use storytelling, particularly traditional Appalachian tales, to inspire teams bound by an inspiring mission.

She would talk about the seven generations. She would talk about that you're in a fixed point and if you think about three generations before you, that's kind of like our memory as an individual. And then we can, we can conceptualize three generations ahead of us. And just thinking about how - I can't really articulate it like she did (laughs) - but thinking about what our ancestors did before us, prepared us for where we are, and thinking about how we're working for the three generations in front of us. It's a way to think beyond ourselves, but in a way that is still manageable and coherent. She had a lot of stories about rebellion, you know, about how they were going to bulldoze some trees, so everybody held hands, and stood in front of them, and slept on the bulldozers.

Her mentor’s ability to use the traditional Appalachian concept of the seven generations to link stakeholders to the interconnectivity of systems across time and realize that they
can and should take action for themselves and future generations inspired followers, including Sarah, to be sustainability leaders and advocates.

Sarah took that lesson to heart as she built teams and mentored emerging leaders even in times of perceived failure. “Even when things didn't go the way we planned I would say, hey it's okay, here are the little successes we had. And let's think about those the next time we do a campaign or try to make some sort of change on campus, or have an event.” She is not afraid to acknowledge a larger failure, but also focuses on the successes embedded in the effort and projects forward to the next campaign.

Sarah acknowledged that no matter how inspiring the message, she may not be able to convince everyone to join a campaign or initiative. “And something I've kind of realized is, I may not be able to change anybody's mind tomorrow but when we get people of my generation in office and in leadership roles, maybe that's when sort of the metaphor of tides can start to turn.” She has hope that as she and her peers continue the messaging and storytelling her mentor modeled that significant change will happen in her communities.

**Integrity of systems mindset**

A key mentor in Sarah’s evolution as a sustainability leader, her high school biology teacher, set an example for modeling a systems mindset. “My biology teacher was very eco-friendly, very connected with nature and the environment, and I knew it was important to her. She was also the person who led me by providing information.” Her teacher led her school’s recycling initiatives, which Sarah soon joined, and shared information that led to Sarah’s choice to become a vegetarian. As a result of her
teacher's example, Sarah understood what it was to demonstrate the integrity of a systems mindset through one's own sustainability practice.

Sarah's current sustainability practice reflects the integrity of her systems mindset. She not only talks the talk, but walks the walk. As previously mentioned, she is a vegetarian and is committed to reducing her consumption and recycling.

Yes, individual practices, individual consumption is important but imagine the difference it would make if we had companies implementing sustainable practices across the board. Or if we switched to all renewable sources of energy, we wouldn't have to worry about changing our thermostats one degree. Or limiting our showers to 3 1/2 minutes. Or taking cold showers instead of warm showers, or carpooling. But that is the message saying individual acts matter, it's on you. It's on everybody but that includes it being on you.

She acknowledged that her practice may not have a large impact, but she persists as an example to others and to the companies and communities she hopes to influence.

**Mentoring**

Finally, Sarah's reflections revealed a theme of mentoring that lies outside of the mindset and skill set codes. Sarah described the importance of being mentored by her high school teacher who inspired and encouraged her curiosity about sustainability. By following her teacher's example, Sarah made key choices about her personal practice and even took on her first leadership role in recycling at her high school. She has crafted her approach to the Appalachian communities with which she works based on the example of a key mentor. Sarah has even mentored members of her own family, changing their
behaviors through her example. More explicitly, Sarah mentored fellow student leaders at the university.

A priority for me as a student leader was having one on one meetings with as many members of the organizations as I could. Anyone who wanted to do that, I would sit down, normally when they were first getting involved. I would meet them for coffee and just kind of get a sense of who they were, and why they wanted to do environmental work, or what it was that they wanted to see in their next three, four years on campus, and try to just always keep all of that in mind.

As a result of her mentoring, Sarah hoped to ensure sustainability leadership succession at the university so that the work would continue unabated after her graduation.
Appendix E

Case Study 2 - Tom

Background and Definition of Sustainability

Tom is a returning student at a community college that annually serves 73,000 full- and part-time students on four urban and suburban campuses in the Pacific Northwest. The college offers online, continuing education, community education in addition to two-year degree programs. The college has been recognized nationally for its commitment to sustainability practice and education. Its mission includes language that focuses on sustainability, it has a dedicated office for sustainability and it has several sustainability focused certificate and degree programs. In 2018, the community college was named by in the AASHE Sustainable Campus Index as the top Associate’s College in the U.S. The college’s sustainability director nominated Tom for this study as a student key to the institution’s sustainability success.

At 36 years old, Tom returned to college after 16 years in the workforce where he tried his hand at several entrepreneurial endeavors and became self-educated on issues of environmental and social justice. He is married and has two children. He anticipates graduating in 2019 with an Associate’s Degree in Communications. Tom has held both volunteer and paid roles in the Community College Sustainability Office. He has been a college ambassador for a national campaign to promote tap over bottled water and representative to local consortia on sustainability issues.

Tom used “justice” frequently in his discussion of sustainability, indicating a moral/ethical component to his work as a sustainability leader.
Sustainability is everything too, we've put this word that can mean so many things. I was even thinking about the separation of social justice and what we're calling environmental justice, but it could be sustainable justice. It's just ...if we're not sustaining...the longevity of the planet, then what are we doing? All the other plants and animals have appeared to not be destroying their home, except for us, so I just want that to reverse.

As Tom’s broad and inclusive definition indicated, sustainability is a word that is difficult to isolate. He argued it is that very interconnectivity that characterizes sustainability that makes it so challenging for even leaders to define. Indeed, in his work, Tom has come to see that sustainability is even more expansive and inclusive than he once thought.

**Pre Higher Education Experience**

Tom grew up in a Minneapolis-Saint James Minnesota suburb. In his early teens, he began recognizing a conflict between things he was observing in his community and his own evolving value system.

I have been practicing meditation and things of that nature since I was a teenager...And at that point I learned about the connectivity of all things and, growing up in the Midwest in a suburb of Minneapolis-Saint Paul I just realized that these big-box stores and all the things that were happening didn't make sense. It didn't make sense to me why there was Targets every five miles and all of these really weird masses of mass production of these things that were ... They didn't seem sustainable. I didn't know the word for it then, I was just like, ‘Why are there so many big things?’
Even at a young age, Tom reported that he was uncomfortable with how the world around him worked, or in his view, didn’t work. “And the truth is I have always, since I was a kid, thought something wasn’t quite right with the way civilization was operating and I had never had a really good understanding or approach to it.” However, it took time for him to develop the language to describe his point of view.

Tom became increasingly disillusioned with school and went through a period of rebellion “drinking too much and partying too much...and just shut down for a while.” He continued meditation, however, and eventually made changes to his lifestyle that reflected his increasing awareness of the interconnectivity of systems.

And in that time decided I needed to change it all and so I did. I took my practice internally and brought it externally... I just was like, ‘No more.’ And I had already kind of been running and doing yoga and things like that, but I was like, ‘I have to make up for so much time,’ and so I carried trash bags around while I was disc golfing, going through parks picking up all the trash I could. And I think about two years later I decided I finally picked up enough trash to equate what I had done to the Earth prior to that and I was like, ‘Ah, this feels good.’

In his 20s, Tom continued to develop what he considered to be a more sustainable lifestyle. He was living by himself, buying as much as he could in bulk. He used public transportation when he could and reduced his travel in cars by as much as possible. And he became a vegan. “I just simplified my life as much as possible and I think that was the answer at that point, was just simplify, simplify, simplify.”

Tom’s community was not sure what to make of his transformation. While Minneapolis- Saint James was quite progressive, his suburban neighbors and family were
less convinced of his new lifestyle. "...they couldn’t understand, ‘How do you get your protein?’ I wasn't fostered or brought up with this understanding, I just chose this path. It was through my own investigations, through meditation, through these examinations of what's right and wrong in my own little bubble of my head.” Tom began using the term sustainability to describe his value system, but he felt like that value system was not one that was shared by his community. “I wasn't in a community in any shape of form that I could feel supported or share beliefs. So that was really strange.” Still, Tom persevered and tried to find a way to educate others about his beliefs and how they informed his choices.

Higher Education Experience

Before enrolling in community college, Tom had done a large amount of self-education about sustainability, attending conferences and reading extensively. He also developed several plans for green businesses. When he moved to the Pacific Northwest, he began volunteering in his community, working with organizations that advocated for environmental and social justice issues. When he enrolled in community college, his intent was to major in renewable energy engineering in order to build skills needed to open a hot springs resort with his wife. However, he changed paths, changing his major to communications so he could build the skills he needed to support his role as a leader for sustainability justice.

In his second semester, Tom was hired as a student sustainability coordinator in the Office of Sustainability. In that role, he oversaw the student environmental club. One of the first conversations he engaged in as coordinator was to consider the title of both the club and his position. The club members agreed that it was a more accurate reflection of
their work and beliefs to rename themselves the Environmental Justice Club; Tom became the Environmental Justice Coordinator. This focus on justice as a lens through which to view sustainability, was informed by Tom’s own sense of identity and privilege. Tom acknowledged that while his path is perhaps non-traditional, he felt that he has benefited greatly from his identity.

What I am really interested in sussing out and reexamining and putting up in the light as a white male, cisgender married man with all the privileges that come with that in spite of not having very much economic opportunity, I'm not poor. I did have some understanding of my privilege growing up but not until these last couple of years where I've been like, ‘Oh my God! I have so much.’

He referred to his first year of leadership as humbling. In that time he was invited to give presentations at conferences across the country on sustainability and social justice and food justice and received several award “...but I'm no fool to see that so many of the doors that I had open to me were just simply not there for other people. And that's not a sustainable system.” This self-awareness informed the justice lens that he brings to his sustainability leadership.

Tom seemed at times uncomfortable with the mantle of leadership, clearly expressing a desire to elevate all who would desire to lead. “Leaders are everybody. Everybody is a leader, everybody has assets, and everybody has something really beautiful to offer.” Tom believes the only way real change and improvement can arise is through collaboration across stakeholder groups and the voicing of those who have been disenfranchised. Tom also prioritized building coalitions in his work as a sustainability
leader. He aimed to make sustainability a core consideration when planning any campus events through involving as many stakeholders as possible.

My goal...was ‘How do we work with all the different groups, and how do we just bring sustainability and environmental awareness basically into every programming event moving forward?’ There was a great group of people that were all in leadership with me, and they were all just really appreciative of whatever I was offering during our general council meetings, and a lot of them offered to work in partnership...we would cosponsor events or initiatives. I would just help in any way I could to see that they're being mindful of what they're purchasing and things like that.

In addition to encouraging sustainable practices by student groups on campus, Tom has successfully written grants to support a learning garden, served as a campus liaison to local and national sustainability organizations, and even produces a podcast profiling sustainability leaders and initiatives.

**Projected Post Higher Education Experience**

Tom will graduate in Spring 2019. While he is still assessing next steps, he hopes to use the communications skills he has honed through his leadership experiences to continue his work in the sustainability field. He enrolled in “Mass Communications and Society” and a theater class called “The Illumination Project.” That course, he hoped, will build his skills as a public speaker and storyteller, as well as his ability to empathize with those who have had different life paths from his.

I'm so excited, I don't even know what to expect. I have an idea, I know I'm the white guy, who I think will be the only white guy in the group, so I get to play
Donald Trump and all the people, I'm sure. But I think that's gonna be good too to just go into other people's shoes and things and knock that to the experience of their perspective of just humanity. Yeah, that's a big one.

As Tom successfully made arguments to a variety of stakeholders, from student to college leadership to community leaders, he came to understand the importance of empathy and storytelling to his leadership practice. “That's what I would like to do with my future and that's what school, I think, is going to provide me with, is the ability to help provide better mythologies, better storytelling so that we have different ways of relating to the world.”

As Tom continues to build his skill set, he acknowledged the strengths which have led him to be a successful leader in his college and local communities. Again, his deep seeded belief in equity is at the root of these strengths. He described, “A willingness to be able to look people in the eyes, to treat people with respect, and again, not place them above or below myself when conducting whatever it is I'm passionate about.”

Tom’s leadership practice is also centered around building up others as leaders - allowing for real equity in the development and application of sustainable solutions within our communities. He sees and tries to amplify the potential of those around him. “We all are leaders at some point or another in our homes and our lives.” Indeed, he argued that leadership centered on any one individual is not, in itself, sustainable and that removing the traditional hierarchy from leadership will allow for an ecosystem that encourages true sustainable solutions.

Tom was reluctant to claim much spotlight for himself. Such ambition runs counter to his belief that sustainability is a goal that requires equity and justice among all
stakeholders. He balances his ambition to build a career on communicating the importance of sustainability to our shared future with a heavy dose of humility.

I realize that there inevitably is some level of personal attachment to the concepts and theories that I'm sharing. Maybe some of this is original thought, but I'm not a daft damn fool to think I'm coming up with all this stuff, I'm just sharing it and transmitting it. I don't want the credit for it, I'm just helping get the word out 'cause I don't give a shit if I become famous, I care about the planet and the ecology of this planet and the way that we're going. So, any way that I can use my white privilege and all these things in a beneficial way, then I guess that's my strategy right now too, in part.

In the end, Tom's leadership is deep-seated in his values. He reflected that he simply can't do anything else. “I'm just doing what I feel like is common sense and decency and what we need to be doing in this world.”

**Systems Mindset**

**Interconnectivity and interdependence of systems**

In his reflection on his lived experience, Tom made reference to several of the systems mindset components suggested by Schein (2015), with a particular emphasis on the interconnectivity and interdependence of systems. He first mentioned interconnectivity when reflecting on his middle and high school experiences and his disenchantment with the lens through which he was being taught.

I despised school growing up because it didn't make sense. Even in middle school and high school and history classes I was like, ‘This isn't right.’ And it was because I had studied art history which, if you follow art history, it contradicts the
westernized or the winner's version of history. Those diverged very early on in my learning and I was like, 'Something is really strange about this.' And again, that's a bigger, broader thing, but this was the systems view and how I realized, 'Oh my goodness, this is all connected.'

Interestingly, Tom’s recalled first experience of recognizing what he now terms a systems mindset was through the study of art history. He recalled that for him, that study of art contradicted the “westernized or winner’s” lens through which much of history was being taught and allowed him to understand connections across times and cultures. That interconnectivity was reinforced by the practice of meditation, previously detailed, which Tom began in high school and continues to this day.

Tom explained how a disconnect between humans and natural systems has led to the sustainability challenges - pollution mitigation, food insecurity, environmental justice - that we face today. He suggested that reconnecting with natural systems and identifying as part of those systems is key to moving forward.

Our first step in sustainability in my opinion [is] that we've separated ourselves from nature in general, don't even consider ourselves necessarily an animal like everything else. And so I think my feelings are is that in order to truly gain a sustainability path forward, we need to really remember the connectivity and interconnectedness, that we are all part of all the systems. And so it’s really a systems view of thinking that I am interested in.

Tom explicitly spoke to the interconnectivity of systems. By encouraging us to identify ourselves as animals like any other on the planet, as part of the natural system, Tom stands in sharp opposition to the anthropocentric idea that humans can/should control
nature. After all, if we are nature, how can we use nature for our sole advantage as humans?

Tom also described how this recognition of interconnectivity and human dependence of natural systems informs both his leadership and personal sustainability practice. He defined his viewpoint as,

...a sense of interconnectedness that informs the way I navigate the world, knowing that, you know, we might see physical separation, but knowing that we’re all really in this together and we’re all a part of this earth that is one living organism and the ecology of it is just one thing. That helps me try not to ruin it all, or you know, soil it or stain in in any kind of negative ways, because I know it will come back to me one way or another, and I’d rather foster and encourage and support it. And by it, it’s everybody and everything.

Tom expressed an understanding that his health and well-being is dependent on natural systems and that the actions he takes towards those systems will ultimately have an impact on him. As a result of that interconnectivity, he is compelled to make choices to protect and preserve those natural systems.

Tom’s sense of the interconnectivity and interdependence of systems extends to how he views the relationship between human systems - social, economic, etc. As a result, he approaches his work as a sustainability leader as one that not includes environmental justice as a central concern, but social justice as well.

Social justice, intrinsically it's connected, there's no taking them apart, the social justice and sustainability. We can put all of the solar panels on every roof and wind turbines and geothermal energy all over the place, but if we're still having
these racists and sexists and all these different forms of divisive discourse
then... we call it society, we call it civilized but I don't know.
This mindset that sees the interconnectivity or intersectionality *within* human systems has
led to Tom’s pursuit of coalition building across sectors within his college community. In
his role as Environmental Justice Coordinator, he has framed sustainability as a question
of equity, be it social, racial, economic, etc. “We can't have the conversation of how are
we going to be sustainable without having a how are we going to be equitable, how are
we going to be in this together?” Using sustainability as a lens, Tom sees the
intersectionality of all human systems. Sustainability becomes a goal which all human
systems share.

The initiatives which Tom has pursued in his role as a sustainability leader
reflects the interconnectivity and interdependence of systems. He has worked on issues
of food and housing security with stakeholders from across the college community. “I
just got into managing the food pantry and learning about food insecurity a lot more and
housing insecurity. And then I saw how all that was connected to sustainability as well,
access to resources and all of those things.” Tom has attended conferences with the
student body president and the college’s director of student resources to learn more about
food insecurity and sustainability. The influence of the interconnectivity/interdependence
mindset is clear in Tom’s work as a sustainability leader. Where he recognizes
connections, he builds coalitions and seeks equity for all stakeholders.

Tom also recognizes and appreciates that higher education institutions like his
should make an effort to bring sustainability and associated issues of social and economic
justice into the formal and experiential curriculum. Integrating sustainability into the
curriculum is an opportunity to recognize the interconnectivity of systems through thoughtful design.

We should also have the sustainability component of every single thing we're talking about. It should be, and is applicable, to all facets of school on the curriculum...You can't hardly see a program that doesn't say 'equity, diversity, and inclusion' nowadays. So that's good, that's encouraging. But it's still a lot of talk and the actions are slow to catch up with it and so I'm hoping that we could move that along faster.

In his remaining time as a student leader, Tom hopes to encourage his college to make sustainability even more of a common theme in the formal and informal curricula.

**Biosphere at center**

Tom spoke clearly to the biosphere being a preeminent concern as part of his sustainability mindset.

So sustainability, yes, living within the means of the biosphere in an ecologically mindful way so that we aren't using more than the Earth, our nature and natural systems can produce, and doing so in a way that fosters healthy reproduction in all aspects of land, water, air, etc., while not becoming a virus on the planet and consuming all things.

Tom used provocative language suggesting that through a more anthropocentric approach to the biosphere humans could be considered a “virus” upon the planet.

However, while Tom placed the biosphere at the center, he did not separate human concerns from ecological concerns. In other words, in placing the biosphere at the center, he effectively placed humans at the center as well. “We might see physical
separation, but knowing that we're all really in this together and we're all a part of this earth that is one living organism and the ecology of it is just all one thing.” While Schein (2015) suggests a dichotomy of anthropocentric and systems mindsets, Tom sees no such dichotomy, but rather sees human and ecological concerns as part of the same systems framework.

**Understanding of non-human systems**

Tom’s expression of the interconnectivity and interdependence of systems also implied an understanding of non-human systems.

We’re all a part of this earth that is one living organism and the ecology of it is just one thing. That helps me try not to ruin it all, or you know, soil it or stain it in any kind of negative ways, because I know it will come back to me one way or another, and I’d rather foster and encourage and support it. And by it, it’s everybody and everything.

The implication of this interconnectivity is that in understanding human systems we must understand non-human systems as they are one and the same thing. While Tom did not identify specific coursework- or discipline-based knowledge sets - biology, environmental science, etc. - on which he based an understanding of non-human systems, his deep identification with non-human systems implied a level of understanding upon which he makes decisions and takes action as a sustainability leader.

**Spiritual view of nature**

It is important to note that on several occasions, Tom referred to his spiritual practice of Buddhist meditation as having a profound effect on building his relationship to the world and its natural systems. “I’ve been practicing meditation and things of that
nature since I was a teenager...and at that point I learned about the connectivity of all things.” This again suggested that there is a spiritual component to Tom’s relationship with nature in that it plays a role in feeding his soul, as suggested by Schein (2015).

**Sustainability Leadership Skills Set**

**Engaging teams/stakeholders**

Tom’s reflection on his leadership practice, which he acknowledged is still evolving, evoked many of the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Tom placed a high value on building and engaging teams of stakeholders. His expression of this skill is driven by his belief that environmental and social justice concerns are best pursued when a diversity of voices are heard and respected.

I am completely engulfed in the environmental justice, social justice aspect of the work now because I’m like, ‘Oh, we can't do anything without everybody being on the same page and moving forward.’ So that was, and it has been just such a huge thing for me, that we can't have the conversation of how are we going to be sustainable without having a how are we going to be equitable, how are we going to be in this together?

Tom has worked to build coalitions of students, faculty and administration within his community college setting, as well as bring in external stakeholders into collaborative spaces.

He approaches stakeholder engagement with what he described as a great deal of humility and humor. “I carry enough humility and am humble enough to be an person and not take myself too seriously. I’ll be die-hard passionate about sustainability, but I’ll
also make some fart jokes with you and laugh and just be human.” He uses this humility to counter what he describes as his privilege as a white, CIS-gendered male.

In building teams, Tom seeks to challenge the idea of leadership itself. He views current leadership models as hierarchical, where one leader is at the helm, while others follow. He does not believe that this model, which gives him a perceived advantage due to his self-described white, male privilege, is just or sustainable. “There needs to be a less hierarchical system in place where the leadership is a shared responsibility in a group and that there isn't one person that people are depending on or looking to as the answer or hope because that is not sustainable.” Instead, in building teams, Tom focuses on raising up all members as potential leaders with individual gifts and knowledge that can strengthen the whole.

And that's why the equity, inclusion, and the social justice work isn't just about, ‘Oh, we all need to give each other respect!’ Yes, of course we need to give each other respect, but when we leave the door open for everybody to walk through we're going to be amazed at how many solutions there are; leaders are there in every one of us. And ideally our leaders are everybody because every mother and father is a leader and every janitor is a leader too and they're keeping things afloat. This diversity of leadership not only serves the purposes of social justice, but, according to Tom, opens the door to the greatest possibilities for solutions to sustainability wicked problems. Building teams of leaders, rather than focusing on his own role as a leader at the helm is key to Tom’s sustainability leadership practice.

Tom pointed to these multi-leader teams as key to the shared successes of sustainability initiatives across his campus community.
Take a couple steps back, see that we’ve done some really good work. You know, my predecessors changed the straws already in our school cafeterias, and we had a compost on our campus and the recycling program was pretty top-notch, battery recycling and all these great things. But my goal was ‘How do we work with all the different groups, and how do we just bring sustainability and environmental awareness basically into every programming event moving forward?’

By building teams across sectors at the college, Tom is able to move sustainability issues and initiatives beyond the traditional locus of the Office of Sustainability and into other realms. By building intersectional teams of diverse leaders, Tom avoids siloing his work.

**Identifying stakeholder needs**

In order to build these intersectional and multi-leader teams, Tom must identify and respect stakeholder needs. He again credited humility and a commitment to equity for his ability to build trust with potential stakeholders.

I think perhaps my greatest skill set in this is removing any sort of hierarchy from anybody else that I’m talking with. Knowing that their positions may hold some more sway or power, but to treat everybody as equals. And that goes the other direction as well, from you know, talking with the custodians and whoever else might be involved to the president of the college. And that’s a challenge, right?

Tom engages college leadership, from the college president to the Board of Trustees. He engages with staff on the front lines of implementing and supporting sustainability initiatives at the college’s seven campuses. And he speaks with students, which in a community college setting with a high turnover rate, due to retention or persistence issues and even graduation, is key to building alliances that will push forward initiatives over
time. "A willingness to be able to look people in the eyes, to treat people with respect, and again, not place them above or below myself when conducting whatever it is I'm passionate about." Finally, Tom reflected that as much as he must share a message, he must listen to the needs of others. "A good leader is patient, compassionate, a great listener, and is able to look people in the eyes and trust them and give them their trust and respect." Through humility, a sense of equity, and listening, Tom identifies stakeholder needs and makes them feel part of a larger mission.

Tom also pointed to the role of storytelling in understanding stakeholders and their needs within the sustainability justice and social justice frameworks that are central to his leadership practices. He asserted that an over reliance on data, which he acknowledged is key to some stakeholder groups and building some arguments, has disconnected us from each other in our journey towards sustainability. "We have put way too much invested into quantitative data in our work towards solving this. I think humans are qualitative and that we're story tellers and we work off of stories, and myths." Tom recognized that we all relate to the world differently. As a result, we can use storytelling as a way of understanding each other's points of view, systems of meaning making, and, as a result, our needs.

Finally, Tom uses a sense of humor to connect with stakeholders. While the stakes are high in sustainability work, Tom argued that we cannot lose sight of the things that bind us together, be it humor or traditions.

If humor is lost, if there's too much seriousness, forget about it. If there's anything that I want to see in leadership is a sense of humor remaining through it all because this life is just a big old struggle basically from start to finish and
that's why ceremony and community and things like that are so important. A good leader knows that too and can just roll with the punches and make sure they're not just taking up all the space and just letting things unravel as they can with fostering and facilitating goodness.

A focus on “fostering and facilitating goodness”, as Tom described it, makes room for all stakeholder needs to be acknowledged and for voices to be heard. Tom is determined to remove himself from the center of the work and allow others to help move the team forward.

**Demonstrating high emotional IQ**

Throughout his reflection, Tom repeatedly demonstrated a high emotional IQ, particularly in how he examines his own story and experiences and how they have led him to his current work. When Tom was in high school, he was an indifferent student; he did not connect with the perspectives offered by his teachers and rather looked inward, through meditation, to build a sense of connection with the world. Still, the sense of disconnect with the world around him led him to some dangerous and potentially destructive behaviors. Tom recalled when he recognized that he must not only develop personal beliefs regarding sustainability, but he must live according those beliefs.

And then something just switched in me when I was about 19 and I think I just got really depressed because I hated school and I was drinking too much and partying too much and all of this, and just shut down for a while. And in that time I decided I needed to change it all and so I did. I took my practice internally and brought it externally.
Tom began living a life that was connected to his emerging sustainability beliefs: simplifying his life by discarding possessions, shopping locally for organic foods, becoming a vegetarian, etc. By connecting his beliefs with the choices he made on a daily basis, Tom describes that he found a greater sense of meaning.

Tom’s repeated reflection on his perceived “white, male” privilege demonstrated a high level of emotional IQ. He described himself as, “a white male, cisgender married man with all the privileges that come with that in spite of not having very much economic opportunity.” Tom acknowledged his privilege and the role it has played in his success as a sustainability leader.

I did have some understanding of my privilege growing up but not until these last couple of years where I’ve been like, ‘Oh my God! I have so much.’ Including even this last year which has been very humbling in that I was given awards and I got to go on like five different trips around the country, different conferences, and present on sustainability and social justice and food justice and all these things. And I did it, there was some merit in the hard work and actions that I took, but I’m no fool to see that so many of the doors that I had open to me were just simply not there for other people. And that’s not a sustainable system.

While Tom’s privilege has opened doors to him that perhaps may not have been open to others, Tom’s self-awareness and understanding of his role and position allows him to use that privilege to give voice to stakeholders and their ideas.

Tom acknowledged that despite his focus on the intersections of equity, social justice and sustainability justice, he does take pride in the work he has done and has ambition for the work to come.
And so it's so tricky because I think, including myself, these visions of grandeur, ‘I want to be a hero or famous,’ or whatever, ‘I'm want to write a great book,’ or ‘Hope this podcast is incredible.’ That's, I think, human nature. But I think the best leaders are those that aren't getting the accolades and perhaps even noticed necessarily because they do such a good job of nourishing and supporting those around them that they're quietly leading and you don't even hardly notice it.

Tom recognized that he will always have to balance his own natural ambition for recognition with what he believes are the qualities of a great leader.

Standing in contrast to his ambition is Tom's desire to be of service to something larger than himself, a need that helped place him on the sustainability practice path when he was 19 and struggling with his place in the world. “So the natural altruistic I think ability to want to be of service is just a part of me. I love helping, I love, love, love the reward of seeing other people succeed, have comfort, feel heard and respected and all those things.” Tom recognized the dichotomy between natural human ambition and his need to be of service to a larger whole. This recognition not only demonstrates high emotional IQ, but helps Tom make leadership decisions that are informed by his own understanding of his motivations.

**Engaging in complex problem solving**

Tom’s reflections also spoke to his engagement with complex problem solving. An example is his work developing a grant to support a Learning Garden project that had previously been approved and then defunded by the community college leadership. The Board of Trustees, when allocating funds, did not see the project as being in the best interest of the college and installed a concrete walkway in its place. Tom recalled,
That initiative was amazing to work with because I got to learn about the fact that
for 10 years students have been trying to get this thing approved, students and
staff and faculty, and that the bond that got approved four years ago I wanna say
now, which was a massive, massive bond that ... One, two, three, four new
buildings, including our library, the building where the student union is and the
Cascade Hall. Like massive buildings. Half or more of the whole campus was
redone with this bond. Students were told that this Learning Garden was just
gonna be built into that, but the board decided it wasn't in their best interest and
put a giant concrete walkway and nonsense out in front of the library. So we have
this massive concrete skateboarding park, basically, in front of the library instead
of a Learning Garden.

Tom collaborated with the student body president to secure the funds needed to install the
garden. “I’d never written a grant before, so that was a whole new world to work with.
We wrote a $40,000 grant to get this established, got it approved. I am amazed by the
bureaucracy of all the things that go on with getting anything done, but it is going to
happen.” While the college has yet to break ground on the project, Tom successfully
navigated much of the bureaucracy he describes and was able to do so while learning new
skills needed to write a successful grant and change the minds of college leadership about
the project.

Tom’s previously discussed interconnectivity and intersectional mindset impacts
all of his project work, injecting a level of complexity as Tom intentionally builds cross
sector teams and elevates all voices and viewpoints.
My goal was ‘How do we work with all the different groups, and how do we just bring sustainability and environmental awareness basically into every programming event moving forward?’ And that was really cool, because there was a great group of people that were all in leadership with me, and they were all just really appreciative of whatever I was offering during our general council meetings, and a lot of them offered to work in partnership.

With an overarching goal to make sustainability a shared challenge across sectors throughout the college community, Tom considers what are the best approaches to initiatives large and small. Whether he is building partnerships to pursue an initiative like the Learning Garden or simply helping a student group make more sustainable decisions around hosting events, Tom engages in problem solving at all levels with an added degree of complexity due to his determination to work with diverse stakeholders.

Tom works on these complex initiatives is in addition to his course work. Indeed, balancing his life as a student, a college employee, a volunteer and a spouse and father is a demonstration of complex problem solving it itself.

It’s not extra work necessarily. I'm like, ‘Oh, I can apply a little bit of this to the Greater Portland Sustainability Education Network and a little of this to the Take Back the Tap campaign and a little of this to writing my papers for school.’ So I'm doing my homework, schoolwork as active outreach for campaigning for sustainability and environmental justice, water rights, all these issues that I care about.
Tom’s ability to balance work, school, and his home life by allowing each to inform and support the other is a demonstration of complex problem solving that is unique for many higher education student sustainability leaders.

**Challenging the status quo**

As a teenager, Tom challenged the status quo when he began making lifestyle choices that were not aligned with those of his family and community. Tom recalled how he became a vegetarian in order to put into action his growing belief in the importance of a sustainable lifestyle. “In Minneapolis-Saint Paul there was a lot more of that progressive action, but in the suburbs and my community and circles people, they looked at me like I was the black sheep and I was weird.” Without a community of sustainability practice to support him, Tom began acting on his beliefs. In the tradition of Thoreau, he simplified his life, shedding belongings as a way of defying the consumerism he observed around him. He took public transportation when he could and shopped locally to reduce his carbon footprint. As he was beginning to sharpen his definition of sustainability and live a more sustainable life, he found himself standing alone. “I’d heard of sustainability and I knew what sustainability was and is, and I was writing poetry about saving the world and all these things, but my community didn't have it.”

Now in his mid 30s, Tom understands that deeply entrenched social and economic systems make finding sustainability solutions if not impossible, very hard. Indeed, developing sustainable systems directly defies our current constructs.

Capitalism doesn't allow for that, and that's just the truth of it. There's just no room for it, it doesn't work in a supply and demand economy where the infinite growth is necessary for the system. That's a tricky and daunting task to look at
and really confront frankly, 'cause as long as we're still trying to make solutions up within that social construct, I don't actually believe we'll ever get out of it necessarily.

Challenging the status quo is at the core of Tom’s work. Because he identifies true sustainability success as not just standing apart from but also in opposition to current social and economic systems he must always challenge the status quo to develop needed solutions.

**Communication of inspiring mission**

Tom’s continued focus on developing communication skills, be it through public speaking, theater, writing or even podcasting, speaks to his commitment to communicating an inspiring mission to stakeholders. That inspiring mission is purposefully inclusive. “Leaders are everybody. Everybody is a leader, everybody has assets, and everybody has something really beautiful to offer.” Tom believes that elevating and voicing the leadership potential in a great diversity of stakeholders increases the likelihood that we will find solutions for wicked sustainability problems.

As previously detailed, Tom’s intersectional approach to sustainability leadership, with its shared focus on social, economic and sustainability justice and equity, demands that he build and inspire diverse teams with an inclusive message. He does this by encouraging others to take action. “I like to hold other people up and provide opportunities for them to do the things that I am seeing that can be done. So I really like to participate in engaging, and encouraging, and supporting other people to lead as well, to help create more leaders.” Tom also makes a point of celebrating others’ successes. Part of his inspirational message is not just about the good we can do for the world, but
the good we can do for each other by lifting them up as leaders and recognizing their gifts. “I just like to help other people see that and I think that’s probably something other colleagues of mine and people can see, that I’ll go in any group and help support the group by just being encouraging and seeing everybody’s assets.”

**Integrity of systems mindset**

Finally, Tom demonstrated the integrity of a systems mindset in the lifestyle choices he makes. As mentioned before, Tom did not come to this mindset, nor take action on it, until his late teens. He did not have examples to follow in his family or community so had to define how to live a sustainable life on his own terms. Despite this, he felt an urgency to make changes to his life for his own health and the planet’s. He describes picking up garbage along streets and in parks for two years before feeling like he had made a positive impact proportional to the negative impact he had made through past actions. Tom was living on his own, shopping at local markets and buying in bulk to reduce waste and his carbon footprint. It was a dramatic shift, but one to which he has held for almost 20 years.

Tom acknowledged that when he first made these changes in his life, he felt compelled to share his beliefs with his family, friends and community in a way that was, perhaps, not productive. Tom initially became a vegan and would find it hard to resist preaching the reasons why when visiting friends.

There was a time when I was all high and mighty, trying to inundate people with the shock and awe of why they should change their ways. But I stopped very quickly in that because I was like, ‘That’s not my place, I can live by an example and that’s about as good as I can do.’ And so I really just found the humor and
grace in that and didn't try and enforce my beliefs on anybody, and then in fact went from full on vegan to ‘I'm not going to turn down food if I'm served it in my friends' and family's houses.’

Tom lives his example, but as his leadership practice has evolved, he recognizes that forcing his beliefs on others may be counter-productive. Even understanding the value of accepting food shared, even if it is not something he would normally eat, in building the trusting relationships he needs to be an effective leader, has become part of his lived practice.

Finally, as a leader, Tom recognized that he must be present. He cannot accept a leadership role and not live its responsibilities. In particular, he must demonstrate the integrity of a systems mindset that extends to the intersectionality and justice he seeks through his leadership. “I'm showing up. I think if there's anything a good leader does, is just shows up. Like I'm here, ‘Present,’ you know what I mean? I'm coming again tomorrow and let's keep moving forward. And whatever's on the table, whether I came up with it or someone else did, let's get this done.” Tom recognized that it is not enough to message inclusivity, it is not enough to accept a label of a leader, but he must show up, do the work and keep moving forward to the larger goal.

**Intersectionality**

It is important to once again highlight that Tom’s approach to sustainability leadership has an intense focus on human systems intersectionality, which stands apart from the system mindset suggested by Schein (2015). While Schein suggested the interdependence and interconnectedness of human and non-human systems, Tom takes his vision a step farther and speaks directly to the intersectionality of human systems
within a sustainability framework. Tom does not believe that environmental or sustainability justice can be separated from social justice concerns. It is crucial that Tom, in his sustainability leadership, give the platform to others, to understand their viewpoints, not just as a tool to build stakeholder engagement and teams, but as moral imperative. This intersection within human systems reflects Tom’s larger belief in the intersection of all systems - human and natural - and deeply informs his sustainability practice.
Appendix F

Case Study 3 - Jennifer

Background and Definition of Sustainability

Jennifer, 23, a biology major, graduated in 2017 from a Carnegie Doctoral/Research university in the South that serves more than 27,000 students. The public university offers 141 undergraduate, master’s and doctoral degrees on multiple campuses. The university has a Center for Sustainability that oversees sustainability curriculum, including an undergraduate sustainability concentration and a Sustainability Practicum course; the center also offers public education and engagement programs. The university was recognized by Second Nature’s 2017 Climate Leadership Awards with an Honorable Mention. The director of the Center for Sustainability nominated Jennifer for this study as a key student leader who contributed to the university’s recognition. While an undergraduate, Jennifer became involved with the Center for Sustainability first as a student volunteer, then as an intern. She managed the campus garden and led education and outreach initiatives that supported sustainable practices on campus and in the community.

Jennifer’s definition of sustainability compels her to consider how her decisions as an individual and a leader will impact not only the present, but generations that follow. “Sustainability to me means practicing whatever that is, it could be sustainability in a relationship, sustainability in the world, sustainability in earth, but practicing in a way that you can continue to do that and it continues to thrive without it falling in on itself.” Jennifer admitted that this definition has become more expansive since she was first introduced to sustainability as a concept in college. “It's bigger than just those few things
that I was initially introduced to. Well, then I was just looking at sustainability as, ‘Oh, you recycle. You grow some plants. You reduce reuse, recycle.’” Jennifer believes that society’s and individuals’ disconnection from nature leads to unsustainable practices and the tremendous amount of waste she sees in her community. Jennifer’s own connection to nature, as well as a self-described well-developed sense of justice, has informed her path to becoming a sustainability leader.

**Pre Higher Education Experience**

Jennifer grew up with her mother as her only child, but was co-parented by her father and had four half-siblings. Jennifer recalled her mother was the first to notice that Jennifer had a clear sense of right and wrong and was unafraid to voice her opinion. “I always had something in me that was like, that's not right. You should treat that right. That's not fair.” She said her mother reports that Jennifer was never afraid to speak her mind when she saw something she saw as unjust.

In high school Jennifer also became curious about the natural world. She connected with nature through gardening. One year, she planted collard green seeds in her backyard, just to see what would happen. The next year, she harvested her first crop. “The next year I had a patch full of collard greens that I didn't know what to do with, but I thought it was cool.” This connection, although relatively undefined for her before post-secondary education, led her to seek out a university and a field of study, biology, that would help her explore the natural world and deepen that connection.

**Higher Education Experience**

As a freshman, Jennifer began her exploration of sustainability, enrolling in an environmental sustainability course that inspired her to begin to make decisions to lead
what she considered to be a more sustainable lifestyle. “I became a vegetarian after that class. I started being more conscious about the amount of water I was using, what I did with my waste, how much waste I had, reduce, reuse, recycle.”

Jennifer also began volunteering at the Center for Sustainability. She credited the center’s director, who had also been her environmental sustainability professor, for inspiring her and other student leaders through her dedication, her integrity and her pervasive sense of hope. “And so to have somebody come in a positive angle like, let's do this. Let's make our environment better. Let's try. Let's do what we can even if it's just a little bit and it doesn't seem significant, let's at least try.” Jennifer began as a volunteer, but eventually became an intern at the center managing the campus garden.

Jennifer believes her mentor’s integrity - the way she demonstrated her commitment to sustainability practice no matter the task at hand - built deep respect in her mentees. Jennifer recalls one of the first times she worked with her mentor. They were working with students on move in day to facilitate recycling. Jennifer recalled her mentor leading by example. “I respected that she genuinely cared. We did a program when students first moved in... to recycle boxes and stuff and she really was about it. She would go into dumpsters. She was pulling out cardboard, and I'm just watching her.” Her mentor’s dedication and high level of expectations of her students drove Jennifer to a deeper commitment. The center director expected students to volunteer for at least a year before they could apply for paid positions in the center. She was clear in her expectations and held herself to that same standard. “Her dedication to trying to make her campus better her life better, I really appreciated that, and it was like, you know, little efforts can go a long way.”
One of Jennifer’s first volunteer positions was in the campus garden. She was becoming more aware of the natural world around her, even on a busy university campus. She recalled being called to the project. “I started getting into gardening. I was volunteering with an after school garden program. And I started to realize the importance of agriculture and knowing where your food comes from, because that’s where it all starts, food.” Jennifer began to recognize how food plays a large role not only in human systems, but in non-human systems as well.

Jennifer’s volunteer role became an internship and she was tasked with managing the campus garden. Success did not come easily. She was passionate about gardening, but did not have the technical knowledge or experience to instruct others. She admitted she was not ready.

I just jumped in. The basis of the program was I supposed to help Scott which was who did the whole garden. He wrote a how-to guide. He gave me books, but you can't read how to do that. You have to have experience. I had to hold workshops. I was responsible with teaching people, teaching students my age and sometimes older than me how to garden and how to do stuff and I was just guessing the whole time. So the first year wasn't that great. We had an end of the year harvest celebration and nobody showed up except for the one friend that I made showed up and I felt really sad.

Jennifer shared her experience and feelings with her mentor, who sent Jennifer to an urban agriculture bootcamp for four weekends so that Jennifer could not only build her gardening skills, but also the relationship building skills needed for a community garden to thrive.
Jennifer went on to successfully lead the garden to greater levels of impact and engagement.

Jennifer’s work even had an impact on her family and friends as she began sharing her passion and commitment with them.

Well, I started to talk more to my friends about gardening. ‘Hey, you guys should plant things. You know the plants do this for you.’ And I stopped eating meat because I learned about all the... chemicals and industrial farming. I just stopped, and it was hard for my family to accept because they were like, ‘You eat everything.’ But eventually, I started to have influence on them. My mom became a vegan. And it was just one person that I could impact, it made me feel like I was doing something.

In addition to leading by example through her own life choices, Jennifer came to understand through her work with her peers and even her conversations with family that how we speak about and advocate for sustainability is as important as the message itself. Having empathy for your audience is key to successfully communicating any message. “I definitely believe that you got to be careful because if you say try to bring it in the wrong way, you turn people off.” Acknowledging that her point of view is born from her experience, Jennifer understands that she must respect others’ life experiences and points of view if her message is to be heard.

**Post Higher Education Experience**

In the year after graduation, Jennifer continued her commitment to gardening, taking a position with the City of Atlanta as a gardener and working at a local farm. She also continued to develop a business plan for a line of organic, sustainable beauty
products that she had created during her undergraduate years. That project showed her the complexity of sustainability driven decision making in business and the marketplace. While product developers often gravitate towards the lowest cost product, sustainable product developers must set aside that priority to consider factors like the sourcing of ingredients and the sustainability of the packaging. In addition, the product must be marketed differently and to a specific consumer. Jennifer credited her natural curiosity and the research skills she learned in college for bringing that project forward. “I had to really research what I was doing. If I was going to be able to answer people's questions and teach them about it, I had to know everything that I could about it.”

Jennifer also began working with children in an urban gardening program, continuing the work she had begun when she first volunteered in the after school gardening program at her university. Teaching others how and why sustainability is important to individuals and communities had become a core value. “It's like instilled in me like, ‘Okay, sustainability. How do I continue to live a life that can keep going, and I can pass that knowledge on to others?’” Jennifer not only sees a role for herself as an educator, but as a role model and facilitator to bridge the gap she sees between society and the environment.

Jennifer has put her business plans and work in Atlanta on hold to take on a new sustainability education challenge. In January 2019, she will travel to Ghana as a member of the Peace Corps to work for two years with a rural agricultural community to help it develop and implement more sustainable practices. She knows it will be a physical, emotional and mental challenge, but sees the experience as the opportunity to build her confidence, skills and even integrity as a sustainability leader. Jennifer is
particularly aware that as a woman, she will need to deal with culturally based attitudes of the men in the community in which she will live and work.

One of the challenges I was told I would face was because I'm a woman, and most of the farmers will be men, so they may not take my authority seriously as compared to if I was a man, so I was coached on how to deal with that. I was told to just go and learn and get their trust and respect and then try to go about it. That's going to be a learning experience in itself, because I'm kind of a feminist and I don't like when people talk to me or look at my crazy, but it will be a learning experience.

She knows that empathy and patience will play a key role in her success.

It's easy for me to understand what somebody else is going through. It's easy for me not to judge them, like they don't know. They don't have the same background that I have. I can't compare their level to mine or to somebody else's. I can't compare myself to somebody else because we all have different, you know, situations going on. I'm going to have to like really use some patience and really understand that I'm in a different culture and respect it, but still be confident in myself and let people know like, 'I'm coming to you with respect, come to me with respect,' but I have to be more open and think about it before I speak."

Jennifer's sense of justice, first observed by her mom when Jennifer was a child, is still firmly at the root of her work to support sustainable agricultural practices. “So I see that, okay, I don't think that you all are treating this environment well, so I'm going to do everything within my power to be an example for change to happen.”

Systems Mindset

Interconnectivity and interdependence of systems
In her reflection of her lived experience, Jennifer referenced the interconnectivity and interdependence of systems. She applied the term sustainability not only to the interconnectivity between human and non-human systems, but also to relationships between humans as individuals.

Sustainability to me means practicing whatever that is, it could be sustainability in a relationship, sustainability in the world, sustainability in earth, but practicing in a way that you can continue to do that and it continues to thrive without it falling in on itself. So, for example, sustainability in the environment. We need to practice the things that we do; we need to practice in a way that it can continue from generations after us, it can still be continued and it's not detrimental to the future.

In framing her leadership practice thusly, Jennifer demonstrated an understanding that the decisions we make as humans have an impact on the environment not only in the present, but over time. “The natural world is something that's far away that doesn't affect us, but that's the opposite. And without it there, we would be in trouble.” Be it in our personal relationships or in our relationship with the natural world, Jennifer recognizes that our actions have impacts that reverberate in the moment and in the future.

Jennifer acknowledged that she did not always view sustainability in such broad and connected terms. When she first joined her university community, her definition of sustainability was more narrow in scope, focusing on the environment only and actions such as recycling and reusing. She was inspired by a freshman year professor to begin to make changes to her own life, to become more conscious about what she did with her
waste and to become a vegetarian, for example. Looking back, Jennifer realized that this was just the first step into a larger, deeply interconnected world.

But sustainability is way bigger than that because you have to be able to sustain yourself, you have to be able to sustain relationships, you have to be able to sustain all of those things in order to sustain ... It's bigger than just those few things that I was initially introduced to."

As Jennifer’s sustainability leadership practice has evolved, she identified the intersection between social and economic systems with natural systems. She anticipates that her two-year Peace Corps assignment to a community in Ghana will deepen that understanding.

**Biosphere at center**

Jennifer identified environmental concerns as a driving concern for in her work. As she began volunteering for her university’s sustainability director, she placed the biosphere at the center. “I started volunteering with her and through that I learned so much in having environmental sustainability as a core.” It is important to note that Jennifer did not identify the biosphere as the only core concern, however.

Jennifer believes that it is humans’ disconnection from the environment that has caused us to misidentify human concerns as being of preeminent concern. “We're so caught up in getting here or doing this and driving our cars and having stuff and getting stuff that we don't really need, and just a lot of waste. A lot of waste and a lack of awareness of the natural world around us.” This lack of awareness allows us, as humans, to place our own concerns at the center rather than understanding that environmental concerns must play at least an equal role in decision making if all systems are to thrive.
Jennifer expanded on this lack of human connectivity to the natural world as skewing our understanding of the role of environmental concerns. When you're walking past a forested area and you think it's just one thing that's growing there. You don't even pay attention to it because you're so like, 'Okay, I've got to do this thing next. I'm doing this.' You don't even stop to smell the roses or, 'That's a pretty flower.' We just disconnect from it.

Jennifer pointed out that the dominant anthropocentric mindset that Schein (2015) sets in opposition to the biosphere at the center mindset is an obstacle to connecting with nature and understanding its role in our continued human health. She argued that we cannot continue to make decisions based on that anthropocentric approach and thrive.

**Understanding of non-human systems**

As a biology major and as a gardener, Jennifer demonstrated a knowledge and understanding of non-human systems. The development of that understanding began literally in her own backyard when she planted her first garden. “I just really connected with it. I was like, oh, I wonder what happens if I plant some seeds in the backyard? And I planted and then next year I had a patch full of collard greens that I didn't know what to do with, but I thought it was cool.” Jennifer pursued a deeper understanding of non-human systems through her coursework. As a freshman she took a course on Environmental Sustainability that she credited with opening her eyes to issues surrounding food, particularly commercial, large scale agriculture. As a result, she became a vegetarian and began her work managing the campus garden. She participated in an urban gardening bootcamp as part of her training for her role. Both in the
classroom and in the extra-curricular space, Jennifer demonstrated an acquired understanding of non-human systems which informs her sustainability leadership.

**Spiritual view of nature**

While Jennifer did not explicitly express how nature feeds her spiritually, she implied that relationship in her description of her connection with the natural world. As she developed her sustainability mindset in university, she became more aware of and connected to the natural world around her. “I started noticing it. I started like, oh, there's a flower here. Oh, these are sentient beings. This tree is a live tree, it has feelings, not like me, but that’s when I started getting into gardening.” Jennifer attributed emotion and perception to nature. This implied that one can connect to nature in a way that is in sharp contrast to the anthropocentric, utilitarian approach suggested by Schein (2015). Even in describing how she became involved with the campus garden, Jennifer gave the garden itself a voice. “It called to me. It was like, ‘Hey, come on over.”

Her work and experience have helped Jennifer build a strong and personal connection with the natural world that inspires her desire to become an educator. Of her future career she reflected,

I hope that it will be education, and helping people find the connection that I found. Because I heard this saying that we're like a tree without roots, people who don't know their history or where they come from, and that includes agriculture. A lot of people and nature, a lot of people are disconnected from that, and we're like trees without roots, just not connected to anything. I hope to, whatever it is that I do, I hope to help be a facilitator of that bond.
While not explicitly expressed as a spiritual view of nature, Jennifer’s repeated references to her deep connections with nature, as well as her attribution of emotion and perception to the natural world implies a relationship to the environment that stands in sharp contrast to Schein’s anthropocentric mindset that considers nature to be only a tool for human advancement.

**Sustainability leadership skill sets**

**Engaging teams/stakeholders**

Jennifer’s reflection on her leadership practice referenced many of the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Throughout her reflection on her lived experience as a sustainability leader, Jennifer referred to the teams she has built, particularly in relationship to her work in the campus garden. She admitted that she was not initially successful in this endeavor. At the end of her first semester managing the campus garden she organized a harvest celebration. No one attending except a couple of friends. She knew she needed new skills and knowledge to build a community around the community garden. She asked the Sustainability Director for help and for several weekends attended an urban gardening training program where she learned the ins and outs of gardening and building a team. “We built a community together. We shared our goals. Many of them had never been into agriculture, but they were learning and they wanted to further their endeavors. So that kind of introduced me to learning as a group, as a community.” With this experience in hand, Jennifer returned to her role at the campus garden manager with a renewed confidence in the potential of the project to not only
educate community members about the benefits of growing their own food, but to create a team of like-minded people to make the garden thrive.

Jennifer approached building this team through a combination of confidence and humility. For many, she became the teacher who could guide them with knowledge and skills. “So when I went back to school, I just took on that persona of, okay, I’m the instructor. And I just was learning, ‘So how can I present this to you so you can learn the best way that you can?’” Even though she assumed the role of the instructor, Jennifer openly acknowledged that she, too, was still learning both gardening and leadership skills. As a result of this honesty and humility, she was able to build the community she envisioned. “And then you know I built the community, I built the friendships. And if it was something I couldn’t answer, I would tell them I don’t know, but let’s find out together.” Jennifer admitted that she has grown as a leader through this experience and demonstrates an acquired ability to build a community or team around the garden project.

**Identifying stakeholder needs**

Jennifer understands that identifying stakeholder needs is key to building any successful team. Communication - both speaking to stakeholder needs and listening to them - is a key component of her leadership. Understanding a stakeholder’s point of view and experience is vital.

And you also have to be willing to listen because had I not been able to have, be privileged enough to go to college, I might not have been as sustainably driven as I am. A lot of people don't have that opportunity. So you have to listen to where they're coming from, what background they have. How can you talk to them about it without sounding or offending them? I think communication is everything.
Jennifer realized that her privilege and experience may be a barrier to some stakeholders who may identify her as “other.” She seeks to build connections through communication.

Jennifer pointed to her natural empathy as a key tool in identifying stakeholder needs. It is a skill she relies on to keep herself open to new ideas and experiences.

Empathy, it's easy for me to understand what somebody else is going through. It's easy for me not to judge them, like they don't know. They don't have the same background that I have. I can't compare their level to mine or to somebody else's. I can't compare myself to somebody else because we all have different, you know, situations going on.

Jennifer reflected that all stakeholders have different experiences and perceptions and that, as a result, sustainability and its challenges may not be of great concern. In her work to build teams and coalitions to tackle sustainability challenges, Jennifer identified these experiences and perceptions and helped stakeholders see their connection to sustainability work.

Jennifer anticipated that identifying stakeholder needs, particularly ways of knowing and experiences, will be key to her success as a Peace Corps volunteer in Ghana. She will be assigned as a sustainable agriculture educator and trainer in a small community where there are deeply seated cultural biases at play. Her trainers have told her that she should be prepared to deal with men in the community who will not take her authority seriously.

I'm going to have to not be a feminist. I'm going to have to really use some patience and really understand that I'm in a different culture and respect it, but still be confident in myself and let people know 'I'm coming to you with respect,
come to me with respect, but I have to be more open and think about it before I speak.

Jennifer acknowledged that in order to build a team in a new environment and culture she will need to set aside her own biases regarding gender roles so that she can hear and understand the viewpoints of stakeholders, even if in the end she does not agree with those viewpoints. She must develop and demonstrate respect by hearing their needs.

Jennifer will employ both patience and her skills as an observer to identify stakeholder needs in her new role in the Peace Corps.

I like to observe, especially when I'm in a new situation. Sometimes that cannot be beneficial because I just won't say anything, and then the opportunity will pass by. Sometimes it's beneficial because I'm able just be there in the moment to see how things are, understand my situation. I plan on just, for the first, for however long I need to, I plan on just observing, helping out where I'm needed. Before I start to go in, just trying to make changes and do all of this, I need to understand the culture and the situation.

While Jennifer, with her training as a gardener and education as a biologist, has the skills and knowledge needed to make a positive impact on the community, she understands that she must develop a deep understanding of the community and its individuals if she is to be able to put her skills and knowledge to use.

Demonstrating high emotional IQ

Throughout her reflection on her experience as a student sustainability leader, Jennifer repeatedly demonstrated high emotional IQ, particularly in assessing her own strengths and weaknesses, as well as her relationship to others. Jennifer reflected that
patience was key to building a community around the campus garden project. “Patience. Patience, patience, patience because trying to get people to ... They don't have to be there. I mean, they should, but trying to get them to want to participate.” Indeed, Jennifer described her initial efforts to build a team as a failure and had the self-awareness to reach out to her mentor for guidance and training to help her develop as a leader. The experience of the urban gardening boot camp was crucial to her development. “There's nothing like experience. Nothing. I mean, you can read a book. It could prepare you mentally. You can have some talks. You can look at some PowerPoints, but until you get out there and you get your hands dirty and you fall a few times…” Jennifer acknowledged that her most powerful learning experiences were those that were hands on and allowed her to fail and learn from that failure.

Jennifer reflected that humility has played a significant role in her leadership style. She expressed that her education has offered her privileges and knowledge that others might not have, but she strives to create space for everyone to join her teams.

Humility. A sense of we're all living this, struggling together. Just because I'm aware of it [sustainability] doesn't mean that I'm perfect...I just had to know that I am on your level, I'm not your superior. I just happen to know something that you need to know.

Jennifer demonstrated a high level of emotional IQ in understanding not only her own privilege and her role as a leader, but that the very role of leader can be off-putting to some and that she needs to work to make all feel welcome to her initiatives.

Jennifer pointed out that public speaking is a challenge for her. She is not naturally extroverted and must work hard to achieve her goals. “I'm also very, sometimes
I can be very well-spoken when I'm not being ... I can be extroverted when I'm not being an introvert, I'm like right in-between the two.” She also admitted that she can lose focus over time. When she began her own line of organic beauty products she found herself losing momentum. “It’s easy for me to get distracted and then I’m like, ‘Oh, I was supposed to do this like three weeks ago.’ I can always use more confidence, what I’m doing and what I’m saying.”

Jennifer anticipated that her time in the Peace Corps will help build the confidence she needs to continue her work as a sustainability leader and educator. She knows that the time in Ghana will be a physical, mental and emotional challenge, but is eager to take a risk.

It's volunteer work, so I'm not really making any money, it's really for service. I'm going to have to eat what they're eating. If I get sick, I just have to try not to get sick. I mean, just the uncertainty of it, like the risk that's involved, but I see the opportunity in the growth and the connections. I feel like I'm about to come about as like five times better person.

Jennifer’s ability to identify what she needs to grow as a leader and the kinds of opportunities that will lead to that growth demonstrated a high level of emotional IQ.

When Jennifer spoke of her Peace Corps journey it is with both a sense of reality about the challenge before her and with the knowledge that she will persevere.

I feel like I'm going to be very confident, very focused. I know that I'm going to go through things that I may not want to go through, I'm already open, but I know that I'm going to triumph through those things, and learn through those things, and
come back with all of the skills that I've gotten back from those things that I had to learn.

Jennifer clearly anticipated that the Peace Corps experience will help her strengthen two self-identified weaknesses - confidence and focus.

**Engaging in complex problem solving**

Jennifer’s reflections revealed an ability to engage in complex problem solving. As previously detailed, she came up against obstacles in building a community around the campus garden project. Jennifer’s self-awareness and willingness to ask for help led her to a valuable training experience, the urban gardening bootcamp, that helped her gain confidence and adjust her approach to the project. These skills were invaluable as Jennifer began developing her own line of organic beauty products. Jennifer admitted what she doesn’t know and uses her research skills to advance her work. “A skill that I had was my willingness and openness to learning things and teach myself ... I had to really research what I was doing...I graduated from college, I knew how to research stuff and look things up and make notes and be organized about it, so that was a tool.” The deeper that Jennifer dove into the organic beauty product project, the more she understood the complexity of designing a market viable product that met her standards for sustainability. Her values and mindset required her to develop a product that would be more expensive, but would have less of a negative impact on the natural world.

With sustainability, most of the time when people are making a product, they want to go for the cheapest thing so they can have a low cost product, but when you're trying to be sustainable, you're trying to make sure, ‘Okay, is the product I'm using organic? Can I get organic, and if I do, can I afford to sell that and make
a profit? Try to have sustainable, recycled plastic as containers, which is like triple the price of the regular plastic containers.’ It's like a different, you got to market it differently. You have to market it to people who understand that whole lifestyle, and then you have to try to teach those who don't so you can profit.

Jennifer will put her organic beauty product line on hold while she is in Ghana. She will undoubtedly need to use the same skills she applied to that project - identifying the unknown, researching, decision making, and communicating - to her work in the Peace Corps.

**Challenging the status quo**

In her university’s center for sustainability Jennifer found a community that was encouraging of her point of view and helped her build the skills she needed to become a sustainability leader. She described her university as,

moving towards sustainability. They started looking into sustainable electricity, sustainable water roofing, white roofs. They were on the sustainability wave, especially with the Center for Sustainability doing everything it was doing. I would say it was developing more. They were pretty sustainably conscious.

Jennifer did not indicate in her reflection that she ever felt a need to challenge the status quo in the university setting as she found it supportive of her work in the community garden and in other initiatives she undertook through the center.

However, until she arrived at university, she often found herself at odds with the status quo in her community. While she did not immediately identify sustainability as a term to define her value system, she recalls being uncomfortable with what she observed around her.
For example, my mom always tells me whenever I would try to talk about somebody or tell me that person is this, I would always say, no. You can't do that. Like she said I always had this sense of justice about me, so the fact that I was so die hard about sustainability, she wasn't surprised because she saw it in me as a little girl, but I didn't get introduced to sustainability until I got to college. It was not part of my community.

Jennifer's innate sense of justice, first recognized by her own mother, made her uncomfortable with how people were treated. As previously detailed, Jennifer regards nature as being sentient. As she became exposed to the concept of sustainability, she realized that her sense of justice extended to the natural world and continued to educate others about the change she believes needs to happen. “With sustainability you have to be able to, no matter what the status quo is, you have to be able to look at something and know within you that it isn’t right. You have to be able to act accordingly.”

Jennifer focused her attention on influencing change in her immediate community - her family and friends. The knowledge she had gained through her university experience and her commitment to sustainability inspired her to challenge her family’s and friends’ thinking, particularly when it came to food. “This is something that you can tell your friends about, you can tell your family. You should spread the word.” Jennifer, who had become a vegetarian much to the surprise of her meat eating family and friend community, began gently confronting her friends about their food choices.

“You know that cow meat is coming from and industrial farm with a lot of pesticides and all that?” And they’re like, ‘Really?’ And I’m like, ‘Yeah, that is going into your body and it’s hurting you. You know, let’s think about this.’
always planted the seed. They kind of regarded me as the nature girl. ‘Oh, there she goes.’ And many of my friends were like, ‘You know, you’re right.’ Jennifer knew that her choices regarding leading a more sustainable life would challenge the thinking in her community. As she led by example, she also directly offered a challenge to that way of thinking through individual conversations. While some may have dismissed her, she knows that she had an impact on at least one important person. Her mother became a vegan.

Finally, Jennifer’s choice to join the Peace Corps faced some opposition from her family. She first traveled to Ghana in June 2018, on a ten-day trip with other young people from the Atlanta area. She said, “I just fell in love with it.” Upon her return, she began exploring how she could return to Ghana to learn more about its agricultural systems and practices. Then she found the Peace Corps. While the Peace Corps was eager to have her, her family was not so certain of the move. “My family wasn’t too excited about it, but now they’re coming around once they realized I am going, they can’t stop me.” Jennifer made the commitment to the Peace Corps without her family’s full support, but her determination to continue her work took precedence over living within her immediate community’s status quo and expectations.

**Communication of inspiring mission**

Jennifer reflected on the role of communicating an inspiring mission when speaking of her mentor, the director of the university’s center for sustainability. Having taken classes with the director, as well as worked on several projects, Jennifer appreciated that her mentor could take what seemed to be a daunting, almost impossible challenge, sustainability, and make it possible.
As we know, the topic of sustainability can get real dark and depressing, but the way that she presented it was always as, ‘You know this is happening, but this is what you could do to better. This is how we can take steps forward,’ instead of ‘Ugh, this is how it is in such and such years. We're all going to die.’

Her mentor’s unflappable positivity extended to even what seemed to be the most insignificant actions, allowing anyone to feel like they were part of a team making a larger difference. “And the skills that I really appreciated from her was that she was always encouraging and she always was smiling. She always was like, ‘Hey, it's okay. We can do this.’” Jennifer was inspired to join the Center for Sustainability first as a volunteer and then as an employee because of this inspiring message.

Jennifer identified teaching as her main mode of communication as a sustainability leader. Whether educating friends and family about industrial agriculture or teaching her peers or young people how to garden, she assumes the role of a guide, rather than an authority. In her work at the garden, her goal was to create a learning community. The project was designed to teach and support sustainable agriculture on campus; participation for students was free and included seeds, soil, mulch and instruction. As detailed earlier, Jennifer was not satisfied with her performance as the project leader in her first year. The annual harvest celebration was a self-described flop. After attending the urban gardening bootcamp, she changed her approach to inspire more students to become truly engaged through collaborative learning.

So that [bootcamp] introduced me to learning as a group, as a community. So when I went back to school, I just took on the persona of, ‘ok, I’m the instructor.
And I am just learning. ... I just had to know that I am on your level, I'm not your superior. I just happen to know something you need to know.

And when Jennifer didn't know the answer, she was quick to admit it and to engage the group with finding the needed solution as a team. By messaging that the garden was a learning community, Jennifer inspired more students to engage. And in her second year managing the garden, she had evidence that her inspiring message and approach had been a success. “So when the harvest celebration came, it was a table full of people.”

**Integrity of systems mindset**

Jennifer also reflected that her mentor showed her the value of demonstrating the integrity mindset through our actions. She described an occasion during which she was volunteering for the Center for Sustainability. “...all the things that she has done just in the name of sustainability not because she got recognition, she wasn't doing it for recognition. She was doing it because she felt obligated to make a difference.” The way Jennifer interpreted her mentor’s actions is that she could NOT have acted in any other way. That her beliefs made her obligated to the cause of sustainability. The power of such integrity had a direct impact on Jennifer’s decision to work for the center. “You can't force people to change... This was how [she] led by example and I happen to be there to see it and I jumped on board.”

Jennifer has made a series of life choices that reflect the integrity of her own systems mindset. An environmental sustainability class was pivotal to the evolution of Jennifer’s sustainability practice.

I definitely was inspired. And the way she taught the class; I mean, it was depressing information, but she always said, ‘Well, we can do this,’ and ‘This is a
problem, but think about this.’ I became a vegetarian after that class. I started being more conscious about the amount of water I was using, what I did with my waste, how much waste I had, reduce, reuse, recycle.

By making daily decisions regarding sustainability practice, Jennifer leads by example. Even in starting her own business, Jennifer has chosen to take a sustainability pathway. As detailed above, this can be a more complex path to business development, but one that she feels best reflects her values.

Like her mentor, she envisioned a life based on a set of firm values. She anticipated her experience in the Peace Corps will affirm and strengthen those sustainability values. “I feel as though it’s going to make me more aware of what I’m doing and conscious of how I go about living my life or making decisions for a career path or family-wise.” While Jennifer acknowledged the challenges of serving in the Peace Corps, she is confident that the experience will help affirm and deepen her commitment to leading a sustainable lifestyle and developing a career in the sustainability field which are both informed by a systems mindset.

**Mentoring**

It is important to note that the role of mentoring was a repeated theme in Jennifer’s reflections. As detailed above, the university’s director of the Center for Sustainability had a demonstrable impact on Jennifer’s evolution as a sustainability leader. Jennifer turned to her for inspiration, knowledge, and guidance. Her mentor engaged with Jennifer both in the classroom and through their shared work at the center. In particular, her mentor allowed Jennifer to identify what she needed to grow as a leader and then helped her along that path - sending her to the urban garden bootcamp, for
example. Of her mentor, Jennifer said, “You just have to lead by example and hope that the right people see.” Her mentor provided an inspiring message that demonstrated how one can attract new stakeholders to a cause and lived a life of integrity, demonstrating her commitment to sustainability through action.

Jennifer also identified student supervisors and professors as playing a mentoring role in her evolution as a sustainability leader.

I’ve had a lot of mentoring. My supervisor, she mentored me a lot. We had a lot of conversations. It wasn’t anything like, ‘Hey I am your mentor.’ And I had a lot of professional talks with professors. I volunteered with professors, I did work with professors, just talking to them and them sharing their experiences with me. They played a major role. They played as the model, ‘Hey, we’re doing this. We’re trying. Even though we’ve got all these things going on, we’re still making an effort and we’re doing it with a smile on our face.’

Jennifer received several key messages from her mentors. That leading by example is a powerful tool for sustainability leaders. That sustainability work is a challenge and requires a consistent effort, even when there are obstacles in the way. And that having a positive attitude in the face of sustainability’s wicked problems is vital to keeping the work moving forward.

Jennifer also recalled playing a role as a mentor to younger students. One student in particular struck her as having potential to be a leader who could carry on her work with the garden once she graduated.

A few people kind of stuck to me. There was one guy I met. His name was Christian and he was really interested. He really took an initiative. He would stay
after. ‘Oh, could I do this? How about this? What if we met at this time? I really want to get involved.’ And I was like, ‘Ok, I’ll teach you everything I know.’

Having been mentored herself, Jennifer saw the importance of helping new sustainability leaders develop, particularly in an environment, higher education, where student leadership turnover is high. Not only did Jennifer help Christian learn the skills he needed to pursue his sustainability work, she ensured leadership for the community garden would be in place when she graduated.

**Experiential/Project-based learning**

Jennifer also spoke to the value of learning through experience. While she did speak of some impactful classroom experiences, she spoke most often and in most detail about opportunities she had to try and fail. “There’s nothing like experience. Nothing. I mean, you can read a book. It could prepare you mentally. You can have some talks. You can look at some PowerPoints, but until you get out there and you get your hands dirty and you fall a few times…”

Jennifer also spoke to the simplicity of hands on activity when introducing people to the concepts of sustainability. One of her roles at the Center for Sustainability was tabling at events and recruiting new student volunteers. She found that having environmental or sustainability relevant projects had a large impact on raising awareness of our connection to nature.

I would have little projects people can do. One year I did a terrarium tutorial, and people had fun with that. Just more awareness of the natural world. I mean, people are so disconnected from it, but you can literally take a plastic bottle,
recycle the plastic bottle, throw some rocks and activated charcoal and some moss, and you have a little nice piece of science to brighten up your room.

While a small and simple example, Jennifer’s use of project-based learning helped her peers experience a connection with nature they would otherwise have missed, a connection that may inform their choices moving forward.

Jennifer is confident that her time in the Peace Corps will be an extension of the experiential learning opportunities she had in university. “I mean, just the uncertainty of it, like the risk that’s involved, but I see the opportunity in the growth and the connections. I feel like I’m about to come about as like five times better person.”
Appendix G

Case Study Four - Molly

Background and Definition of Sustainability

Molly, 22, graduated from a private liberal arts college in the Atlantic South in 2018. The college offers more than 60 degrees to 2800 undergraduate and masters students; Molly majored in Sustainability Science. The college is in a small city setting; the college locates most of its sustainability initiatives at a centralized sustainability center. The center supports teaching and learning, as well as applied research, and offers students the opportunity to engage through a fellows program and a community conservation program. The college was recognized by Second Nature's Climate Leadership awards in 2017. Molly was nominated by the sustainability center’s director for this study as a student who played a key role in the college’s success. Molly held a fellowship at the center and focused on transportation initiatives for both the college and local community. She is currently employed at the college as a coordinator and quantitative analyst.

Molly’s definition of sustainability highlights the interconnectivity of human/social and environmental needs.

I think I initially thought of it as environmental science, in the sense of the physical environment. But there's the physical environment and there's also social environment and those interplay and connect. So, I'd say it expanded, just understanding how sustainability penetrates all aspects of physical environment as well as social and they influence each other. I think, it has become... more people centric for me, but not disregarding the more environmental side of it, but I think
it goes hand in hand, and people have such a big impact on the environment, and so creating healthy communities is one way to help with environmental degradation. It’s all together.

Key to Molly’s continuing work supporting sustainability initiatives through her role as a data analyst is this belief that sustainability practice not only avoids negative impacts but opens the door to thriving environments and communities.

**Pre Higher Education Experience**

Molly’s childhood informed her sustainability focus in college and, now, in her career. Molly grew up in a home with both her mother and father and a younger sister and brother. She reported that her family moved every four years. Her family was not what she would called sustainability minded, but she grew into an understanding of sustainability through her attraction to and curiosity about the natural world. “I really liked being outside, so I would spend a lot of time outside growing up and through my time and still have loved that even more now, but my family wasn’t ever one super in tune with sustainability or anything like that.”

While her immediate family didn’t engage in any practices that Molly characterized as “sustainable” her great grandmother provided an example of sustainability practice. Molly recalled spending time with her, exploring the natural world and observing her lifestyle. “Grandma Bell” composted and had her own garden from which she harvested food. She took Molly geode hunting in a local creek and introduced her to other outdoor adventures. Molly attributed her great grandmother’s choice to lead a more sustainable lifestyle to her experience in the Great Depression. Having grown up with little, Molly believes, her great grandmother avoided wastefulness.
“[She] grew up in a time where she went through the Depression and so she had to save everything. That's definitely a big part of it, I think. And then we're in a time period of just abundance, not everyone obviously, but a lot of people are in abundance of resources and so that can create an illusion.” While Molly did not recognize her great grandmother’s actions as “sustainable”, being at that time unfamiliar with the term, she did observe and aspire to emulate those actions.

While Molly had yet to recognize sustainability as a concept, she continued to observe the interconnectivity of systems, human and environmental. A mission trip to Central America was particularly powerful. For a week, she and a group of high school peers, traveled to a village to do service work. While there, she deepened her understanding of how environmental and human health are related. In particular, she observed the connections between clean water and how that relates to disease, community health and education. Molly credited her time in college with helping her more concretely define sustainability and understand how sustainability is defined by the interconnectivity of human and environmental systems, as well as allowing her to find her particular niche in sustainability studies and practice: transportation.

**Higher Education Experience**

When Molly began her sustainability practice and leadership journey in college, she approached sustainability from an environmental focus.

I thought it was based on environmental topics of water, forests, agriculture, etc., but I soon realized after starting the major that sustainability encompasses much more...I also think about how sustainability can be applied to any organization,
their systems, and the importance of structuring an organization that operates in a sustainable way.

With the encouragement of a family friend, Molly became involved with the college’s center for sustainability. Her first job was to manage the campus’ bike rental program, what she describes as a pretty simple task. She managed a fleet of 20 bikes, marketing the program, signing up students, managing payment, teaching bike safety, and maintaining the bikes themselves. However, by her sophomore year, her own curiosity led her to broaden her approach to the program.

Molly described the campus as small and enclosed with a bike path and bus system that connects the campus to the small city nearby. However, the campus culture is very car centric. Molly promoted the bike rental program as a way to reduce emissions and as a healthier choice for students. She also did significant research into how modifications to the program - such as creating covered bike parking - could help reduce waste within the program by extending the life of the bikes themselves. Molly had seen that the bikes were a potential solution to an emissions and human health problem, but could also be a source of increased waste. As she implemented a solution to one sustainability challenge, she realized she had potentially created another challenge and addressed it.

Molly followed her fellowship with summer internships in the small city that is home to her college. She first worked for a non-profit bike shop. The bike shop provided opportunities for low income people to earn a quality bike through volunteer service. The program engages youth and allows them to learn bike repair and rebuilding
skills as well as leadership skills. Molly observed a significant disparity in socioeconomic status and persistent racial divisions in her time at the shop.

There's a pretty large percentage of people who don't have access to a personal vehicle, so the bike shop was a place where you could earn a bike, a donated bike. There's a lot of moving parts. There's a lot of different parts to the organization, but it brings in a diverse amount of people from all different backgrounds. A lot of people who come in there rely on a bike as their main source of transportation, but there's plenty of people who drive as well. Then there's issues with the bus system, and people getting to work if the infrastructure isn't actually supporting pedestrians or bicycles. It's this whole complexity that I became engrossed in, and there's vast inequality even in this little town.

Molly also completed a summer internship with the city, working for the Parks and Recreation Department during a time when the department was creating a new large park. She credited the internship with helping her understand how municipal policies and decisions are made and also showing her the tension that often exists between the public and local government.

I also experienced, actually, a lot of tension between the public and the government. I mean, it's not ideal, but you'd love for government and the public to be able to work together and to make decisions. From the public side, from the community members I knew tension surrounding government decisions and then the government getting frustrated with the public.
While the idea of a new park, new green space was welcomed by all stakeholders, Molly witnessed how complex it is to build consensus around a great opportunity to increase sustainability in a community.

As an intern with the city, Molly learned that engaging with stakeholders and understanding and valuing their points of view can go a long way in creating the buy in for sustainability initiatives, be it a new park or riding public transit. In particular, engaging with the community on a repeated basis to understand its needs is a crucial step. Molly carried this learning with her into her senior year when she and several peers wrote a campus transportation plan as part of a capstone project. Her team first gathered existing data, identified data gaps, and established an evidence-based context for the plan. Then they went to the community. They conducted over 20 interviews with stakeholders from across the campus not just to collect their input, but to also message that they wanted the community to be part of their efforts to create a more sustainable transportation plan for the college.

Molly and her team also researched transportation plans at peer colleges and universities, speaking with those who had worked on their design and implementation. The resulting report was a complex document of images, data and texts supporting their recommendations for the campus transportation plan. The project was a challenge for Molly, who described herself as an introvert, but one that allowed her to build the skills she knew she needed to continue her sustainability leadership work and follow her passion for transportation as a key piece of sustainability systems.

Putting her passion into action was a key victory for Molly. Having spent two years focusing on how transportation is part of a larger sustainable system that meets
human and environmental needs, she was inspired to overcome any obstacles to completing the project.

Yes, there was doom and gloom for sure, but there's a lot of positive energy, and I really liked the capstone experience of taking something that I was working on all the time with transportation on campus, and formulating some type of action. I mean, it's not going to change the world by any means, but I think that that's exciting. And then also seeing people in the [larger] community come together and bond together and try to form something that creates better relationships with all the people around you is encouraging and fruitful.

Molly recognized that moving her project from the classroom to the community was key to her learning and sense of success.

Molly credited both her experiential learning experiences outside of the classroom and her coursework for helping her sharpen her definition of sustainability and find her passion for transportation as part of the complex sustainability system. "My work experiences on campus as well as my internships during the summer out in the community helped shape my definition of sustainability. Seeing the wide array of what sustainability can mean and how it applies to all aspects of the world is quite fascinating."

Post Higher Education Experience

Molly now works as a data analyst and coordinator for the college. Her work informs sustainability initiatives on campus and in the larger community. She sees the value of data in persuading action for sustainability.

I can see some social challenges in [our community], but to actually bring together the data, and show the numbers, and then propel more conversation also.
You have to have the human component to it, to use the face value of it, but at the same time that data is really what people are interested in, in order to invest financially, or invest their time, and effort into it.

In addition to deepening her data analysis skills, Molly continues to challenge herself to develop the skills she sees as crucial to being a leader for sustainability. Understanding historical and cultural contexts are key to building the empathy she believes is necessary to engage stakeholders and make sound decisions. “So, even as a leader, understanding what has happened, how can I make next decisions more fruitful, and better for whoever you’re working with.” Past actions, successes or failures, and the context in which those actions were taken inform Molly’s leadership.

Molly believes an effective sustainability leaders bring a positive spirit in the face of truly daunting challenges. She described a good leader as “someone that has a positive attitude and that’s a go getter and really wants to take charge in bringing people together and collaborating.” A sustainability leader must be able to work across sectors and stakeholder groups to bring teams together. Just as sustainability is an interconnected set of systems, successful sustainability leadership crosses brings stakeholders from across sectors together to define problems, and develop and implement solutions.

Finally, Molly believes that a sustainability leader must have, live and communicate a strong vision in order to inspire others to engage in this complex work. “I think that it is really cool when you see people come together and can create something positive.” As Molly continues her work in sustainability, she acknowledged that her definition of sustainability has and will continue to evolve.

Systems Mindset
Interconnectivity and interdependence of systems

Molly spoke repeatedly and directly to the interconnectivity and interdependence of systems throughout her reflection on her experience as a student sustainability leader. In defining sustainability, Molly used the language of interconnectivity.

When I think of sustainability, I think about the intersection of meeting people's needs and meeting environmental needs to create a flourishing world...I picture the social foundations which are meeting people's needs of water, food, jobs, etc. and the planetary boundaries of physical limits to biodiversity loss, ocean acidification, climate change, etc. At the same time, sustainability is not only about not creating a negative impact, but supporting a thriving environment.

Molly clearly indicated how human and natural systems are inextricably linked. She also indicated that the needs of people and the environment are interdependent - that to have a "flourishing world" we must meet the needs of both.

Molly also reflected that while the concept of sustainability can seem overly broad, it is best understood through that interconnectivity. “But in regards to the definition of sustainability, the whole idea of dynamic systems thinking and sustainability being so broad, seeing that everything is in a system and everything is connected in some way is an important piece of that.” Molly asserted that focusing on interconnectivity and interdependence is key to her work as a sustainability leader.

By her own description, Molly’s understanding of the interconnectivity of systems evolved during her college career. When she first arrived at college, she defined sustainability through the environmental lens. However, as she sharpened her focus on transportation she began to see how decisions and actions taken in one system can have
impacts in others. “Transportation became my main focus throughout college. Seeing how transportation has such a big impact on the environment and society with all the social implications transformed my view of sustainability.” As Molly dove more deeply into the concept through the coursework within her sustainability studies major, as well as through internships and summer jobs, her definition evolved to highlight the importance of systems interconnectivity and interdependence.

Molly’s internships in the community, as well as her capstone project creating a transportation plan for her college, deeply informed her understanding of the interconnectivity of systems. “Being out in the community and making connections through caring for the environment is one way that shaped my experiences.” Be it providing low income members of the community with a reliable bike to meet their transportation needs, working with the municipal government on policy initiatives as an intern, or running the college’s bike leasing program, Molly has drawn a straight line connecting human social and economic systems and natural systems.

Finally, Molly has personalized this interconnectivity, making her own life decisions based on how they might have a broader impact on human and natural systems. So, I’d say it expanded, just understanding how sustainability penetrates all aspects of physical environment as well as social and they influence each other and I don't think I realized, oh think about where a product you buy comes from and how that affects all these different layers, different players and the environment in this way and that way and that way.

Through her reflection on her experience, Molly clearly expressed a sense of the interconnectivity and interdependence of systems as suggested by Schein (2015).
Biosphere at center

While Molly’s evolved definition of sustainability has grown to encompass human systems, she still holds to environmental concerns as being overarching of all others. “It [the environment] really encompasses everything. I guess another definition with sustainability is concentric circles of having the environment encompassing society and the economy. It penetrates everything.” Rather than being at the center, Molly’s vision of the relationship of environment health to human health is encompassing. The environment embraces all human systems and has a direct impact on whether those systems thrive. Therefore, the environment must be of primary concern when making decisions.

This commitment to the environment traces back to Molly’s early experiences with high school mission trips. She travelled to Central America to support clean water access for impoverished communities. “I could go into the debate of short-term mission trips and the often-negative impacts and idea of ‘toxic charity,’ but it was really impactful for me at that time because I saw the importance of clean water, how that can relate to disease, health, and education.” Indeed, Molly identified that before the challenges of human disease, health and even education could be undertaken, clean water had to be made available to the community. Clean water is primarily an environmental issue, but has wide ranging impacts on not only humans, but on flora and fauna. While Molly understands the interconnectivity of systems, her work is still largely informed by the primacy of the environment in her decision making.

Understanding on non-human systems
Molly implied an understanding of non-human systems through her acknowledgement of the interconnectivity and interdependence of systems and her choice to place the environment as the overarching concern when making decisions. In order to successfully develop the transportation and policy projects she completed, she had to consider how non-human systems interact with human systems and what impacts each has on the other. However, she did not explicitly express the degree of that knowledge or how that knowledge might have been acquired.

**Spiritual view of nature**

Molly attributed much of her personal connection with nature to her great grandmother, with whom she spent significant time growing up. Her great grandmother lived in Quincy, Illinois, and had survived the Depression. Molly remembered,

I got to spend a fair amount of time with her until she passed away in 2013, so I would grow up going to visit her. She would always compost, and so she would have a food bucket with their food scraps. That was something that I knew to do when I was at her house, and she had a garden, and so she lived differently in that regard than my family, and so that was something that I saw and experienced. Molly saw how her great grandmother lived in a sustainable way. Her garden was fed by the compost from her food bucket. Molly witnessed her great grandmother’s ability to feed herself from that garden, but in a way that did not deplete or damage the natural resources around her. Molly’s connection with her great grandmother inspired her to live a similar life connecting to the natural systems immediately around her. “We would do a lot of outdoor things. We'd go geode hunting in the nearby creek. Looking back now, I'm thinking, ‘Oh, I want to be more like Grandma Bell.’”
Molly also recognized that there are spiritual connections made with nature through religious traditions. "You can see in so many different types of religion how the environment can come into play and in a lot of religions it's seen as there's a relationship. Specifically, I'm not Catholic, but Pope Francis' encyclical for the environment. I just find it fascinating." Molly expressed a deep connection with nature that extends just beyond an intellectual relationship. Rather, in describing the influence of her great grandmother, her love of being in nature, and even the religious connections with nature, Molly demonstrated a view of nature that can be described if not explicitly spiritual, at the least deeply personal.

**Sustainability Leadership Skill Set**

**Engaging teams/stakeholders**

In her reflection on her experience as a student sustainability leader, Molly referred to many of the sustainability leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013), and Bendell and Little (2015). Molly indicated the importance of engaging teams and stakeholders. In speaking of leadership, Molly stated, "The idea of a leader is someone that we're not all working in silos, but you're bringing in everyone and you're all from different places and backgrounds, and have different skill sets, but there's some way to have it all connect." Because sustainability challenges are interconnected, concerning human and environmental systems, Molly recognizes the need for multiple points of view, as well as skill sets, in order to devise solutions.

Molly's experience on her capstone project reflected the need for engaging teams and stakeholders. It also reflected that building teams is not always an easy task.
I really liked the capstone experience of taking something that I was working on all the time with transportation on campus, and formulating some type of action. My team was awesome and we didn't have a lot of conflict, but working together you have to be able to, if something arises, deal with it and then be able to move forward.

Molly, who described herself someone who likes “harmony,” was able to engage her team and overcome obstacles and conflicts that might have impeded the project.

In addition to managing her capstone project team, Molly has had experience working in the larger community, a small city surrounding her college campus. Her time working for the municipality as well as in the bike shop demonstrated the importance of bringing stakeholders together to achieve a larger sustainability goal. “Seeing people in the community come together and bond together and try to form something that creates better relationships with all the people around you is encouraging and fruitful.” While Molly often framed her work as being particularly local, she aspires to bring what she has learned on a local stage to a more global level as part of her future career goals. The role of building teams has been a key lesson and one that continues to inspire her. “I think that it is really cool when you see people come together and can create something positive.”

**Identifying stakeholder needs**

Key to successfully building teams to address sustainability initiatives is an ability to identify and effectively address stakeholder needs. Molly’s reflections on her leadership experience emphasized this point. “I think, really wanting it to be kind of, ‘Yes, I’m a leader but I want to hear all of your input, and all of you matter and there’s value in each person,’ I think is super important.” In order to hear input, one must have
the skills to listen. One must also, according to Molly, actively seek input from all stakeholder groups. “Meeting people where they are and listening to them is super important, and being willing to go out and try to find those people, not being passive.” This practice could, and likely will, result in some degree of conflict as competing needs and concerns will arise through the active solicitation of input from a diverse set of stakeholders. Molly pointed to her own ability to manage conflict as key to this process. As she described, it is “The ability to create harmony within the group by listening to each person and managing conflict if it arises and not propelling it forward.”

Molly put this philosophy into practice during her capstone project when she and her project team actively sought out the input of a broad range of stakeholders while developing a transportation plan for the college.

We talked with the police, facilities, Student Government Association, different campus clubs, we talked with Greenlink, the public bus system, the director. We talked with student organizations such as the International Student Association. There's a lot of international students are not going to be able to drive, and I think that really just having prior relationships with them was useful, but then also just going out, and saying, ‘We want you to be part of this. We're gathering information. We want to hear your input, and really understand your perspective on this situation.’ And, so I think posing it as that, and less of, ‘We're writing this plan just us, and it's going to be …’

By gathering the feedback of these stakeholders and incorporating it into the resulting plan, Molly and her team were not only able to demonstrate the strength of their research
and writing process, but create early buy in for the resulting plan from these stakeholder groups.

Molly observed that at the municipal level stakeholders are often consulted, but every stakeholder may not have their needs met by subsequent decisions. In this case, a process which engages stakeholders in a transparent way, acknowledging that a solution may not be able to serve all needs, but that all needs will be heard and considered, is vital.

I mean it's a complicated thing, but just in any certain project, go to the community not in a hierarchical standpoint, but in a meet them where they typically go, and invite them to say their opinions are. You can never appease everyone's opinion of course, but listen to their insight. And, it might not be a one time thing, but it will be community participatory process through the entire planning process.

Molly acknowledged that consensus may not be the result of stakeholder engagement, but that stakeholder engagement is key to building trust over a long period of time, a trust that can outlast any one initiative.

Molly also pointed to the role of an historic perspective in identifying stakeholder needs. By considering what Molly refers to as “context,” a leader can better understand a stakeholder’s point of view, how she or he arrived at the beliefs or values which they are defending.

I like context a lot. I guess in terms of understanding people's perspectives, because you have lots of different perspectives, and one perspective isn't the best, or the right answer. I just like context even in terms of history, understanding
what's happened in the past, and why that influences what happens today, and
how can we learn from that.

Through her experiences both in her college and larger community, Molly developed a
clear understanding of the importance of identifying stakeholder needs as part of her
sustainability leadership practice.

**Demonstrating high emotional IQ**

Molly demonstrated a high emotional IQ, particularly when reflecting on her own
strengths and weaknesses as a leader. Molly described herself as naturally shy. This can
make stakeholder engagement challenging for her.

Being willing to go out, and talk with people. Again, I don't exactly know how to
define that, but I have previously been much shyer, and so just going, and
introducing myself to people from all over the university, and really connecting
with them, I think was very useful when doing the capstone project.

Molly’s reflection showed that she understood the capstone project and the stakeholder
engagement process would be challenging to her as someone who is a self-described
introvert. However, with that knowledge in hand, she took on that challenge because she
knew the input she would gather would be important to the project’s success.

Public speaking presents a similar challenge for Molly. She expressed an
understanding of its power of in building support for her sustainability work, but
acknowledged that it does not come naturally to her.

I definitely feel like I'm not the best at presenting. I think as a leader you should
be able to present yourself well, and you got to stand up, and communicate
clearly. And, that's something that is not a strong suit for me, but I really got to
practice that a lot through class, when we would have to stand up, and give a little
debrief on where we were at with our project, and then as well as when we
presented in front of the whole department, and at conferences.
Again, Molly identified a weakness and committed to building her strengths in that area
to make herself a more effective leader. This demonstrated a high level of emotional IQ.
Molly also demonstrated high emotional IQ in sharing how she best learns and
develops the skills and knowledge sets needed to be a leader. She identified project­
based learning as an effective path to becoming a sustainability leader. Both her capstone
project and her work in various internships have been key learning experiences. Of her
capstone project she recalled,
And, then just learning the process of writing a large document, and really
undergoing research was very valuable, and all the steps it takes, and how detail
oriented you need to be was exciting. And, it was exciting that it was a topic that I
had been working on since sophomore year.
Molly pointed to the step by step nature of the project and also that is spoke to a passion
she had identified years before. She could see and understand how the steps she took
from research to writing might have an impact on her community.

**Engaging in complex problem solving**

In her roles as sustainability leader on campus and in her larger community,
Molly repeatedly engaged in complex problem solving. Molly’s first role in
sustainability leadership was a fellowship through the college’s sustainability center. In
that role she managed the college’s bike rental program. What may seem to be a simple
task, had many moving parts.
So, initially the fellowship is pretty basic in the sense of it's managing the semester rental program, or students. So, at the time when I started there were 20 bikes, and as a fellow you're in charge of reaching out to students, marketing, having them sign up, in charge of the payment, giving out the bikes, making sure they know bike safety, and what resources are available, or maintenance as well as the trail that's right behind campus. And, so just being the point person throughout the semester if they have issues.

Even at a fundamental level, what Molly described was complex. Outreach and marketing requires understanding an audience and what will appeal to them to get them to participate. Managing payment, bike safety education and bike maintenance systems are each complex tasks.

Molly exhibited a drive to optimize the program, not just administer it as it existed. As a result, she began advocating for covered bike parking on campus. She put her researcher hat on.

Basic research when I was a sophomore, but research, talking about covered bike parking, and all of these different maintenance opportunities, because bikes were getting rusted, but then that leads to a waste management problem, students not riding the bikes, maintenance issues.

Molly's research led her down a path where her initial question regarding prolonging a bike's life became one of waste management and user engagement. While her first line of inquiry seemed simple enough - how can I get these bikes to last longer - it opened up new questions and pathways, as many sustainability initiatives are prone to do.
As a result of this research, Molly’s work extended to college transportation policies. As is the nature of complex problem solving, one question expanded into many, revealing larger policy issues that underpinned the observed problem - too many students driving to and on campus, impacting environmental and human health. Molly recalled,

So just trying to think about how we prolong a bike’s life as well as a student to actually want to ride it. We have a pretty car centric campus along with students. There have been some policies that have been more recently put in place to allow seniors to essentially drive to class. And, so it’s a small enclosed campus where you do not need to drive, but that’s a big part of the culture I would say. And, so promoting that in terms of environmental emissions standpoint, and wellbeing standpoint. So, then that progressed into my senior year writing the campus transportation plan with three other students for a cast, and sustainability class.

Molly’s first role as a sustainability leader, as a transportation fellow running the college’s bike rental program, grew as she asked new questions and considered new problems. By her senior year, she and a team of peers wrote a transportation plan for the college to address the policy problems underpinning that car-centric culture.

The transportation plan itself was an exercise in complex problem solving. As detailed previously it required research, stakeholder engagement, team management, presentation and writing. While the team had guidance, they, as seniors, were left largely to plan and execute the project.

We followed a template of a thesis essentially where you had to go gather data, see what data already existed, formulate that, and then create an introduction, a context of the university, the campus. And, then we conducted interviews with I
think over 20 stakeholders, and we met with them, and were in conversation with many of them throughout the process. We've researched other schools through AASHE, and STARS, and saw how they were doing the transportation...we would do interactive sessions, and brainstorming, and sometimes they would give us time to go meet with the stakeholder, or two. We used our logic model framework. So it ended up being a long document with images, and photo, and text.

The degree of skill needed to tackle a project of this scope is high. Molly and her team demonstrated an ability to successfully engage in complex problem solving and, as a result, presented their work to college leadership.

Molly’s work in the community also demonstrated an ability to recognize and engage in complex problem solving. The interconnectivity of systems discussed previously led Molly to recognize the wickedness of sustainability challenges, particularly when she worked in the community bike shop. In exchange for volunteer service fixing used bikes, community members earned their own bike that they could use to meet their basic transportation needs in this small, urban setting. It is a simple idea, but a complex task.

A lot of the people that come in rely on a bike as their main source of transportation, but there's plenty of people that drive as well. Then there's issues with the bus system, and then people get to work if the infrastructure isn't actually supporting pedestrians or bike bicycles. It's this whole complexity that I became engrossed in, and there's vast inequality.
While the bike shop focused on one piece of a larger sustainability challenge, Molly acknowledged that even this small, relatively simple project had many components and many stakeholders. “There's a lot of moving parts. There's a lot of different parts of this organization, but it brings in a diverse amount of people from all different backgrounds.” Understanding the needs of diverse stakeholders, coordinating volunteer engagement, teaching bike repair - these are all tasks embedded in what appears to be a simple project to improve environmental, social and community health. Molly’s demonstrated an ability to engage in complex problem solving in her work both as a college and community sustainability leader.

**Challenging the status quo**

Molly recalled facing resistance from both college and community cultures in her work as a sustainability leader. On several occasions she had to challenge the status quo. As mentioned earlier, Molly considered her campus to be “car-centric” despite the existence of ample bike trails from campus to the urban center and the bike rental program. Recent college policies have actually made it easier for students to drive cars from one point on campus to another. Change does not come easily. “So, we have some really great relationships, but then at the same time some of the administrative higher up, there's definitely some ... It's a relatively conservative campus in a lot of regards.”

An example of this conservative approach was when Molly tried to connect the municipality’s public transportation leadership with college leadership to explore how students and college employees might better use public transportation to travel to and from campus. She first encountered a cultural bias against public transportation.
And, so you would think that, ‘Oh, maybe students don't have a car, or any student could ride, take the bus downtown sometimes.’ But, there's two sides to it, you have maybe a stigma, or who rides on the bus unfortunately.

In addition to having to challenge this underlying bias around public transportation, Molly confronted practical challenges to increasing the use of public transportation to and from campus. The bus schedule was very limited, only arriving and departing about once and hour, and the public transportation system is underfunded. Molly hoped that by engaging with college leadership she would be able to help facilitate a discussion about solutions. However, she encountered reluctance from college leadership.

There is potential, but from an administrative standpoint, there isn't necessarily a willingness to fund part of that line, or something. The director, he came to the university to really try to partner, and wanted to work with us, but there was pushback from up above.

While Molly has yet to find a way to counter this particular example of status quo, she hopes that in her role now as a college employee supporting sustainability initiatives through data analysis, she may help move the partnership forward.

**Communication of inspiring mission**

Several times in her reflection, Molly spoke to the importance of communicating an inspiring mission. “Clear communication with all parties is crucial to be a good leader in my opinion. Someone with a vision and motivation to reach a goal by laying out action items of how that goal may be achieved is something that sets apart a good leader.”

While Molly admitted her own challenges in public speaking, she acknowledged that communication is a key component of successful leadership. She often “speaks” through
data that she frames in a way to address stakeholder needs and inspire their support of her transportation initiatives.

Molly emphasized that creating action based on that inspiring mission is a key component to sustainability leadership.

Then besides just having a vision but actually acting upon it and bringing people in and working with them to create that action is important to me...Even if it's go with the flow and you have a grand vision, and it's not all planned out but having some type of set goals or some type of structure.

Molly reflected that an inspiring mission alone will not serve a sustainability leader or her work. Rather that mission must be accompanied by a vision to action that includes a team that works together to take steps towards achieving a shared goal.

**Integrity of systems mindset**

Finally, Molly has taken steps to live the systems mindset. She spent a formative summer living in cooperative campus housing to deepen her sustainability practice. Residents grew their own food, cooked shared meals, and shared ideas and inspirations for a more sustainable lifestyle.

It also gave me an opportunity to engage in gardening and so, kind of some more down-to-earth practices that maybe you don't do if you're living on campus as much. Everything from art or woodworking or just back to cooking and putting together ingredients from the farmers' market and from the garden.

This experience had an impact on Molly who continues the practices learned from her summer in the communal campus housing. In addition to biking almost everywhere on and off campus, reducing her carbon footprint while engaging in a practice that improves
her own health, Molly has committed to reducing waste and recycling. She shops locally when she can and uses public transportation when not riding her bike. Through her personal sustainability practice she demonstrated the integrity of the systems mindset.

**Human systems and sustainability**

Two themes when reviewing Molly’s reflection: the role of people in developing a sustainable world and the value of project-based learning to Molly’s evolution as a sustainability leader. First, Molly expressed that while her initial view of sustainability was channeled through a more environmental lens, she now sees sustainability as a deeply human-centered challenge. Of sustainability she said, “more people centric for me, but not that concerned or disregarding the more environmental side of it, but I think it goes hand in hand, and people have such a big impact on the environment, and so creating healthy communities is one way to help with environmental degradation.” Molly’s chosen focus on transportation as a sustainability challenge bears out this approach. Her work in her campus community to better understand the choices students, staff and faculty are making regarding transportation; her work with the municipality developing policy and potential partnerships; and even her work in the bike shop reflect a humanistic approach to sustainability. While she clearly expressed that environmental health is a primary concern, she chose to approach it through the idea of building healthy communities, one transportation choice at a time.

**Project-based learning**

Molly also spoke to the importance of project-based learning in her evolution as a sustainability leader. While she was able to enjoy sustainability relevant coursework as a sustainability studies major, when she recalls high impact learning experiences, they are
often project-based. She recalled connecting with a colleague from the municipality.

“She had this project idea and then I was able to work on that. And so it was a tangible ... so, I think that's what makes it exciting, it that it's something tangible and not just, oh this is just for classwork, but also getting something that you're interested in.” Molly explicitly spoke to the importance of having a real world application for her work. She also referenced the real world application of her capstone project. “I really liked the capstone experience of taking something that I was working on all the time with transportation on campus, and formulating some type of action.” Knowing that her project-based work had an impact beyond the classroom inspired Molly’s learning.
Appendix H

Case Study 5 - James

Background and Definition of Sustainability

James is currently a senior at private, Jesuit university in a Midwest urban setting. He expects to graduate in 2019 with a degree in Environmental Science. His university serves 17,000 students and offers 80 undergraduate degrees and 170 graduate and professional degree and certificate programs. The University’s Institute for Environmental Sustainability supports environmental approaches to sustainability through degree programs, on campus initiatives and community engagement. The university was recognized by Second Nature’s Climate Leadership awards in 2017. James was nominated by the director of the Institute for Environmental Sustainability as a participant for his key role in the university’s success.

In his time at university, James has served as co-president of the Student Environmental Alliance, a student sustainability advocacy group, leading several key initiatives, including institutional fossil fuel divestment and the installation of solar arrays. He has completed internships in Chicago and Southeast Asia, as well as a semester at the Stockholm Resilience Centre in Sweden.

James defined sustainability by the interconnectivity of human/social and environmental systems. He is increasingly focused on a systems thinking approach to sustainability practice and leadership. James believes that a fragmented or siloed lens has led to isolated decision making frameworks by which decisions are made and actions taken based on the need of one system only. “So given that, I think that the planetary boundaries and kind of ecological limits, kind of set the rules of the game, than kind of
what we desire and strive for socially sets the base minimum of where we operate, and how we operate. And then economy kind of comes in mainly in my view as a means to serve those societal needs." Only by acknowledging the interconnectivity of all systems, will we have the framework to make truly sustainable decisions.

Sustainability and its inherent interconnectivity bring meaning to James’ leadership. He sees the interconnectivity in all things and even relationships. "And it [sustainability] emphasizes this, connectiveness of things from the desk that my computer is sitting on, right? To the friend that I just talked with, or whoever, right? And then also, I’ve done a little bit of Buddhist study and practice...And their interconnectedness is paramount for just viewing the world and operating with it in a meaningful way. So that is part of my own personal framework."

Pre Higher Education Experience

James reflected that sustainability was part of his life growing up. His parents invested in green energy systems for their home, installing solar panels and geothermal heating systems. James remembered going with his mother to local markets to shop for organic food. He spent hours weeding the family vegetable garden. He acknowledged that these choices and opportunities, which informed his value system, were enabled by a level of economic privilege.

We had economic privilege, and my parents really valued two main things with how they spent their money, and that was education for me and my siblings and really emphasize paying for school and sending us to private schools because they thought that that was related to our religion and value sets. But then food, too. My mom would always go to the organic market and would take us along with her,
right? Just that consciousness of health and otherwise, but the ability to also pay for that. Now granted, we didn’t do crazy vacations or other things that other families might do with that same level of spending, but still, that extra level of spending power is a huge barrier, or perceived barrier for a lot of people.

Religious faith also plays a large role in James’ sustainability practice and leadership. His Catholic faith was informed by family and reinforced by a Jesuit education that has extended to his college years. He is driven to “build a better world” and “find meaning through service.”

Finally, James credited his experience as a Boy Scout as connecting him deeply to the natural world. He took regular trips to national parks across the country from his home outside Washington, D.C. This initial exposure led him to think about what he wanted to study in college. He chose to continue his Jesuit education and study Environmental Science. He understood that while sustainability was a natural fit for him, it may not be for all. “And so part of my interest in studying Environmental Science, but particularly that sustainability lens, or as ... if it was this easy and normal for me, and then looking around, if this is not normal for everybody else, what can I do to make it more normal, nevertheless?”

**Higher Education Experience**

James’ college career has included exposure to sustainability concepts through his coursework, particularly in environmental science, but also in his volunteer leadership role as the Student Environmental Alliance co-president. James became involved in student advocacy early in his college career. He recalled working on an initiative to pressure the university administration to divest from fossil fuels. James was quick to
point out that the campaign predated his involvement, but in 2015, James and his peers were able to gather enough support from students and faculty to compel a vote on the issue by the University Board of Trustees. They voted no.

James and his peers were not deterred and pivoted to a new strategy. They began working directly with the university’s Chief Investment Officer, chipping away at the percentage of investments made in fossil fuels. In addition, in part due to their pressure, the university’s investment policy was amended to include language that stated the university’s investments should be aligned with its mission. This was an unexpected consequence and solution to the sustainability challenge at hand.

With that win in hand, James and his peers turned towards transitioning the university to 100% renewable electricity. The university has completed a climate action plan for 2025 which includes a move towards renewables, but James and his peers were frustrated by the lack of urgency to implement. The Student Environmental Alliance worked with student government to pass legislation and drew up a petition, signed by 580 community members, asking for the university to transition to renewable electricity by the end of the 2019 fiscal year. This work, just as with the work for fossil fuel divestment, resulted in a combination of wins and losses.

In meetings with university leadership, James presented the case, citing other institutions who have successfully moved to renewable electricity, asking direct questions of leadership and challenging false assertions. He had to keep his frustration in check. James admitted that he has little patience for prevarication, even from those who sit above him in a leadership hierarchy. When university leadership repeatedly asserted that the installation of a proposed solar array, which had been repeatedly delayed, would
damage rooftops, James corrected them with his deep knowledge of the proposed ballasted system. As a result of his persistence, James won a commitment to hire an energy advisor to move the project forward.

James has completed two internships and studied abroad during his time in college. He wrote a policy memo for the Environmental Law and Policy Center in Chicago; worked in climate finance, clean energy investment and solar project development with Dragon Capital in Vietnam; and attended classes at the Stockholm Resilience Centre in Sweden. These experiences were transformative, but also reinforced that environmental and sustainability work can be perceived as the domain of the socioeconomically privileged. James has been working on bringing more voices and experiences to the table at his university in particular, focusing on the intersection of environmental and social justice as a way to empower those who may not have previously felt like they had a voice to advocate for sustainability.

James recently reached out to several other student advocacy groups to take advantage of what he sees as the natural intersectionality of sustainability work. Because he sees sustainability as not just an environmental justice challenge, but as a social and human health challenge, James is able to speak and listen to those who may not immediately recognize their connection to the work. At a recent student organization fair, James took advantage of the collective student leadership in the room to recruit for the People’s Day of Climate Action.

A big part of the action was about workers’ rights and workers’ justice. And so, when I spoke with, there’s like a socialist group table, I was like, ‘Hey, it would be great to have you come out for this,’ and I talked almost only about the
worker's perspective. And they showed up and maybe learned something, too. So it was a very intersectional event that I was recruiting to go to and that made it easy to build that intersectional language and value sets into my actions, too. Listening to diverse perspectives has been vital to James’ leadership. He described a process of asking probing, respectful questions, reflecting back answers and finding common values on which to build collaboration. James has learned that communicating his own values is key to his success as a leader. By being transparent about his values and open to hearing and understanding those of others, James believes he can create the foundation upon which success can be reached.

Projected Post Higher Education Experience

As James considers his future, he knows that the skills and values that he has learned and clarified through his course work, internships and leadership experiences will continue to serve him and inform his choices. He will continue making personal choices that express his values. He strives for simplicity and has reduced the amount of “stuff” in his life. He does not aspire to own a car, unless it be a hybrid. He actively reduces his carbon footprint by avoiding flying whenever possible. James pointed out, however, that the impact of such choices are limited and that he feels compelled to do more to meet the challenges we face. He hopes for a career through which he can continue to work to mitigate climate change and its impacts on a large scale.

In reflecting on his college experiences, James observed the strengths and skills that have allowed him to be successful as a sustainability leader. He recognized that his confidence, in particular in approaching university leadership from an informed and principled point of view, served to help him build productive relationships. James
acknowledged that one of his strengths - his direct nature - can also be a challenge for those working with him. It allows him to be realistic about a challenge, quickly set a goal, understand the steps to get there, and attack it head on. While this may be efficient, he knows it is a style that does not work for everyone.

James continues to find ways to voice others through his leadership. By listening and keeping an open mind, and resisting the urge to always approach a challenge from his own point of view, James seeks to empower others.

I think an openness and readiness to listen and to change my mind through the process or approach or concept in general. I think that's a big part of it. Perhaps also the ability to support and know when it's best to use my whatever voice to elevate another as opposed to co-opting or dominating or diminishing, right? So it's that readiness to support and build up others and through that listening and encouragement push others to be bold with their ideas and with their strengths, too.

Despite the obstacles he has had to overcome as a leader in a college setting and the gravity and scale of the sustainability challenges he sees in the larger world, James feels great hope for the future as a result of his college experiences.

**Systems Mindset**

**Interconnectivity and interdependence of systems**

In his reflection on his lived experience, James repeatedly referenced the interconnectivity and interdependence of systems. James explicitly referenced systems thinking in describing his perspective on how the world works.
Isolated systems just don't exist. But developing this sort of systems thinking, and understanding that social and ecological systems are all...that's what the systems are that we live in and work in. There's no human who can live independently of the natural world, or earth, right? From just eating food to drinking water, to breathing air, right? Trying to chunk things into... this is economy over here, this is a society over here... or this is the environment over there in that park; it doesn't at all reflect the reality of our world, which is interconnected.

James sees the world as inextricably interconnected; attempts to define systems as independent will only lead to flawed decision making.

James explained how interconnected systems - environmental, social and economic - work together to provide a framework for how we, as humans, operate in the world.

I think that the planetary boundaries and kind of ecological limits, kind of set the rules of the game, then what we desire and strive for socially sets the base minimum of where we operate, and how we operate. And then economy comes in mainly in my view as a means to serve those societal needs.

In detailing how these systems interconnect, James demonstrated their interdependence as well. In his framework, the efficacy of one system is tied to that of the others. The environment sets limits on human consumption, which in turn is facilitated by economic tools.

James also reflected that just as human and natural systems as interconnected, all human systems and experiences are interconnected as well. He refered to this as the intersectionality of sustainability.
One of the big ways that my view of sustainability has grown or shifted through the work is just really coming to learn and understand that importance of intersectionality. And the need to show up and stand in solidarity with others on their sets of causes and that that is working on the whole and focusing on building that cross sectoral stronger approach. So going wider as opposed to more narrow.

Sustainability is not an isolated cause or need, but rather one that can draw together stakeholders from across interest and experience groups. Sustainability can not only draw groups together, it demonstrates the overlapping and shared concerns of stakeholders with a diverse set of beliefs and points of view.

**Biosphere at center**

James' description of the biosphere as playing a limiting role in the relationship between human and natural systems implies that environmental concerns must be, at the least, dominant in decision making.

So, I think a kind of more aggressive definition, gives more respect to what it means to have planetary boundaries with tipping scales and limits, is really important. If that's not kind of front and center, it's very easy for sustainability to be co-optive, right?

James used the example of "green businesses" to make his point. He sees that label being co-opted to perpetuate existing exploitive systems that are not sustainable. Placing the biosphere at the center of decision making frameworks is key to building sustainable systems.

**Understanding of non-human systems**
James’ lived experience as an environmental science major implied an understanding of non-human systems. He embraced the interconnectivity and interdependence of systems and places the environment as the overarching concern when making decisions. In his work as a sustainability leader, particularly in his advocacy for green energy initiatives at his university, he demonstrated that he understands how human consumption of fossil fuels has negatively impacted both human and non-human systems. However, he did not explicitly express the degree of that knowledge or how that specific discipline knowledge was acquired.

**Spiritual view of nature**

James expressed a belief that American history and culture have served to create an anthropocentric view of nature as being a tool for human advancement. The concept of property is particularly challenging to advancing sustainability initiatives.

So this idea that property, which formerly was mainly land, but like Earth can be owned, is not something to be cared for or shared collectively, but owned and used as you see fit. It’s sewn into our country and how it came to be from the very beginning. I think that, in part, explains the kind of legacy of not having a relational understanding to nature that is a dominant perspective in the United States.

The idea that nature can be owned and used is an obstacle to developing a culture of sustainability. While it is the dominant “American” point of view, James works to change that mindset to one better suited to creating more sustainable human and non-human systems.
James expressed a direct connection between his sustainability leadership work and his personal faith. Catholicism and his Catholic education have instilled in him a view of nature that runs counter to the view detailed above.

My faith is a faith that does justice, and that's what I fundamentally view as what faith is for me. I am a Catholic and I grew up going to Catholic church, Catholic school, and a lot of my education in high school and college has been Jesuit Catholic institutions. The Jesuit approach really emphasizes social justice and working to build a better world, and have that ... I think the phrase is, 'Women and men for and with others,' right? And particularly thinking about and being with people who are on the margins of society. That is the model that Jesus gave us ultimately, and that's the motto. Let's do it, you know? That's my faith, and that's what drives my view of where to spend time, energy and effort and then also what it means to be human. Find meaning through service in the broader sense, that's like working for the greater good.

James' sense of justice compels him to pursue sustainability advocacy that serves the needs of those disproportionately impacted by poor decisions regarding the environment. James argues we must make decisions regarding how we interact with natural systems in a way that is equitable and sustainable for all.

James' approach to his sustainability leadership is informed by his faith and an understanding of the interconnectivity and intersectionality of human and non-human systems.

So for my faith, what's central is we don't live here to accumulate as much money as we can, and power and just kind of go live our individual lives, but we live in
an interconnected world and kind of we're here to be builders of what I would call
the kingdom of God. Builders of society, and contribute to it and serve and work
for and with others in the process of doing that.

James' evolving vision for society is one that respects the interconnectivity of all things
rather than one that prioritizes the economic concerns of a subset of humanity. James'
expression of the relationship of his faith to nature, while not in complete alignment with
the idea that nature feeds the soul, certainly stands in contrast to the idea that nature is a
tool for human advancement.

**Sustainability Leadership Skill Set**

**Engaging teams/stakeholders**

James' reflection on his leadership practice, evoked many of the sustainability
leadership skills suggested by Tideman and Zandee (2013), Metcalf and Benn (2013),
and Bendell and Little (2015). James spoke to the role of engaging teams and
stakeholders in his work. Because James sees sustainability as an intersectional challenge
that impacts all social and economic groups, he seeks out partnerships with student
affinity groups.

One very specific example was in recruiting folks to come out for this People's
Climate Day of Action. And it was at the Org Fair so there were all the different
student organizations. And walking around to the different tables, seeing people
that I knew, and also looking for potential people to help spread the word on this,
a big part of the action was about workers' rights and workers' justice. And so,
when I spoke with, there's like a socialist group table, I was like hey, it would be
great to have you come out for this and I talked almost only about the worker's perspective. And they showed up and maybe learned something, too.

James was able to successfully engage students in a sustainability event by allowing them to see the sustainability through the lens of their own concerns and interests. As a result, he created a larger, more diverse team with which to tackle future initiatives.

James also reflected that building such intersectional teams impacts his own value system. “It was a very intersectional event...and that made it easy to build that intersectional language and value sets into my actions too. So it was easy, I don't know, in that particular instance. But yeah, it was a neat way to see that at play and participate in that.” As he deepened his understanding of others’ points of view and how they intersect with sustainability, his own point of view expanded, allowing him to see even more potential for team building.

James also expressed that team and stakeholder engagement is vital because of a perception that sustainability and environmental work is largely the realm of the privileged who have the time and resources to invest. He makes a point of including as many voices as he can in his leadership practice.

I think it is a very uphill battle to have more voices in the room, and just people routinely coming and putting in time and effort in part because there is a long running perception that environmental work is ... It is a privilege, and a space of privilege, and a lot of big green groups, particularly in the past, catered to those audiences. Now, I think particularly within the last five years we've seen a marked shift in who is speaking in the environmental world, and how they're speaking,
and a really beautiful shift towards intersectional justice movements and focusing on those equity issues at the forefront.

Part of James’ intent in building and engaging teams of diverse stakeholders is to address this inequity of representation in the environmental and sustainability movements. By actively inviting student affinity groups to the table, James addresses social and economic injustices as well as sustainability challenges.

In his reflection, James also spoke to the importance of engaging university leadership as part of his sustainability leadership practice. He actively collaborates with the university’s director of sustainability.

The director of sustainability is our advisor and I’ll probably stop into his office once or twice a week over the past few years, and sometimes it’s a really long conversation. Sometimes it’s just a quick update, but that simple face time and frequent conversation is enormously helpful, because in large part I feel like we kind of work very well in tandem. We can leverage certain power and influence from the student side that he can’t leverage as a staff member, and then he can leverage certain information and advising, all that, as a staff member that we can’t as a student, as a student group.

By building this partnership, James reflected that he can increase his impact. The partnership serves as a bridge between students and staff so that those groups can bring their combined strengths to any campus sustainability challenge.

James also actively builds relationships with university leadership. He does so to build trust so that when he has an initiative for which he needs institutional support, he
can rely on leadership to give him a fair hearing. It is not always an easy process and one that requires a degree of courage.

So, learning how to best kind of apply the gas or, you know, or whatever. You can come up with a metaphor that you like. So, that's been huge, and then with the upper level administration, so those vice presidents, the CFO and all that, it's not being afraid to send emails, not being afraid to walk up at an event like the climate change conference, if one of them happens to be there, and just say, ‘Hi, how are you doing?’ That simple little conversations where you can access, and then when you do, or if you do get a meeting with one of them, being prepared and showing that you know your stuff and that ... Giving them reason to trust you and to say yes to the request.

By engaging university leaders before he has a specific ask, James has learned he can gain their trust and respect. As a result, they are more likely to join a team when a sustainability challenge presents itself.

**Identifying stakeholder needs**

James reflected that identifying stakeholder needs is key to the development of teams to pursue sustainability initiatives. He acknowledged that he must often ask the right questions to build a deeper understanding of what stakeholders' concerns are.

Start by listening. And then, asking questions, I think. How would you approach this challenge? Do you view this as a challenge? If not, why not? Why is this a non-issue for you? So those sorts of questions. But yeah, and then just when hearing things come through that do ring with my view, holding up I heard you say this, that this is important for you. Or I heard you say that you value this or
whatever. And using that as a way to show that we're not on opposing sides but we're on the same side.

James and stakeholders may initially think they are on opposite sides of an issue, but through consciously questioning, listening and hearing, James seeks to identify shared concerns and potential synergies.

James also expressed a belief that there have been barriers for some stakeholders to participate in sustainability work and that part of his role as a sustainability leader is to help identify and reduce those barriers so that stakeholders feel welcome and valued.

I think a lot of important work in sustainability is how do you reduce barriers. I think in general, a lack of routine relation to environment, nature or earth, is really a challenge because most people don't see themselves as relating to nature in any particular way, or as something that's important. Yeah, so kind of a mix of socioeconomic barriers and then value and experience barriers, too.

James pointed to the socioeconomic barriers to building a close relationship with nature as a key barrier to engagement with sustainability concerns. By identifying this barrier, James can begin to address it. His work leading experiential outdoor trips for students across affinity groups helps build that relationship and decrease barriers, effectively addressing stakeholders needs.

Finally, James recognized that being a leader does not necessarily mean convincing someone of his specific point of view.

In order to be effective, it's not a prerequisite to convince another of my view of sustainability, for example. But to have my view and the importance of my view
inform how I negotiate and work but then also be able to pull out the values that are common with the other and emphasize those.

James understands that stakeholders need to have their concerns and points of view validated and value in order to create teams and buy-in for initiatives. So while he operates from his own value system, he does not force it upon others. Rather he looks to identify stakeholder values and concerns and works to build synergies that can be leveraged in the pursuit of sustainability initiatives.

**Demonstrating high emotional IQ**

James repeatedly demonstrated high emotional IQ throughout his telling of his sustainability leadership journey. He was able to reflect on his strengths and weaknesses, as well as how he has learned the skills that he identifies as making him an effective sustainability leader. A central theme in his reflection was the recognition of his socioeconomic privilege. He self-identified “as a privileged white male, heterosexual” who grew up without the economic barriers which he believes often keep more marginalized socioeconomic groups from fully engaging in their education or with the natural world. He attended private schools. His mother brought him and his siblings to the local, organic market to buy food. And he participated in the Boy Scouts, travelling to national parks around the country, deepening his personal connection to the natural world. James sees his identity in American society as a privilege that must be leveraged to help others.

I think it's a constant challenge and I think a huge part of it also is just learning humility in that as much as I can say or do, but I'm my own set identities as a privileged white male, heterosexual. The list goes on. In general, hitting all of
those most privileged categories, not that I have greater responsibilities to think about this and put in time but also a need to acknowledge my own limits and a large part of that is creating opportunities for others to speak or for others to lead.

And I don't think I've figured out exactly how to do that yet.

James' ability to codify privilege and how it affects his role as a leader demonstrates a high level of emotional IQ. He also acknowledged that while he aspires to create opportunities for less privileged stakeholders to speak and lead, he has not perfected his approach. James was able to place himself relative to societal hierarchies and expressed that because others don’t have that privilege he feels compelled, because of his faith, to use his privilege to help remove barriers to their participation in sustainability advocacy.

James acknowledged that what can be a key leadership strength - a direct approach to problem solving - can also be a weakness. Depending on whom he is working with, his approach can be either invigorating or off putting.

I'm in general a very direct person and that has its upsides and downsides, right? So an ability to be realistic about what it's going to take to reach a certain goal and then pretty quickly understand all the necessary steps to get there. And on the efficiency side of things, allocating and attacking head on. And I think that definitely rings true with my style and my leadership approach. And I think it also has for people who are not necessarily very comfortable with that or it's a constant reminder for me, knowing that I am that leadership style, to add more space and time in continuously for feedback.

This expressed self-awareness, as well as the actions James takes to address the double-sided nature of his direct approach demonstrated high emotional IQ. Understanding that
what might work for him may not always work for others and that their feedback is 
essential for his growth as a leader and the success of initiatives is an example of high 
emotional IQ at work.

Finally, James recognized that mistakes and even failure can be instructive and 
help him grow as a leader. He recalled a moment when, in his zeal to pursue a green 
energy initiative, he overstepped his bounds as a student leader. Without consulting the 
director of sustainability, he sent an email directly to the university president demanding 
action. His approach caused quite a bit of backlash and the ire of a key partner, the 
director of sustainability.

By failing. Trying and failing.... The two key things that I learned from that was, 
well, first, that was stressful and we could've done it more delicately, but also, we 
got her attention very fast, in a way that we probably wouldn't have in other ways. 
While it did ruffle feathers, for sure, we ended up having a meeting with the 
president of the university four weeks later and it went very well. So, another 
lesson in that being yes, of course, be respectful and follow proper channels, but 
also, there can be a time and a place to not.

James acknowledged that even though he was able to, in this instance, remedy the 
situation and make the most of the attention he received as a result of the email, he might 
take a different approach. He learned that he needs to carefully assess each situation 
before engaging with stakeholders, particularly university leadership. There is a time and 
place for ruffling feathers and a time and place for following proper channels. The ability 
to learn from one's mistakes and to embrace failure as a learning experience is an 
example of high emotional IQ.
Engaging in complex problem solving

James' leadership of the fossil fuel divestment campaign spoke to his ability to engage in complex problem solving. The initiative required research, stakeholder engagement across the university system, public speaking and advocacy, and alliance building. It also required that James understand the history of the student led divestment movement which predated his own leadership.

These efforts were started with students well before I started. So back in 2012, and it's been a little bit of learning the history and then kind of picking up where students have left off, which I think is an important part about sustainability for sure. So, ultimately it got all the way to the point where 200 faculty members signed a letter and sent it past, all the way through SGLC, university senate. This request for divestment for fossil fuels, and ultimately in 2015 the board voted no. Just kind of a cold and hard no.

James arrived at the university just around the time that leadership was rejecting the students' first requests to divest from fossil fuels. What James described as a "hard no" did not deter him and his peers from continuing to work towards institutional divestment. However, he did decide to take a new approach - relationship building.

Rather than court the board for its support, James focused his attention on the university leaders most deeply involved with institutional investment to begin finding ways to reduce fossil fuel investment.

Then we focused on relation building with the chief investment officer and worked closely with the chief investment officer over a series of meetings. Eric, the CIO, started doing kind of a slow divestment process, moving some assets and
investing in others, kind of reducing that percentage that was invested in fossil fuels, which was a win.

James and his peers recognized that the board would not move to unilaterally divest, but that a measured approach conducted by the CIO would help build momentum towards potentially full divestment.

This change of tack proved fruitful in unexpected ways as well. In addition to winning some degree of fossil fuel divestment, James and his growing team of stakeholders were able to change key language in the investment policy to better reflect the values of the university.

In addition, in part due to our pressure, but many people involved were able to get our investment policy amended to have a segment that says, ‘Oh, and our investments should be aligned with our mission.’ A helpful piece of information to have guiding your investment policy. So, that was actually a huge win, because then you have the kind of backbone for then this particular issue of fossil fuels, but then also any other future thing. Say 30 years from now it's totally different. That was kind of a very long term win. It's very different from, say, that big, flashy announcement of, ‘The University is gonna divest fully from fossil fuels,’ which has its benefits but also its limits.

By being able to identify pivot points in their approach, James and his team of diverse stakeholders were able to adapt to what was initially a loss - the board’s refusal to divest from fossil fuels - and slowly build towards what may be a larger win in the long term for the university and for the environment. This flexibility and creativity is a demonstration of James' ability to engage in complex problem solving.
Challenging the status quo

In the telling of his leadership journey, James repeatedly referenced challenging the status quo. He spoke to this particular skill in his definition of leadership. “That ability to go and have a vision where others say you can't go.” Defying the expected or challenging the rules appears to be central to James’ leadership practice. He spoke of his efforts to bring together students to pass student government legislation in support of renewable energy as “demonstrating or actualizing the ability to say that, to show that business as usual is no longer going to be acceptable for us and the us being our generation because it's our future and we need to take responsibility for that if others won't.”

James recalled a recent meeting with university leadership regarding the renewable energy initiative on campus. In addition to the student legislation cited above, more than 580 community members had signed a petition demanding the university transition to 100% renewable energy. James had been working with the administration on a plan to install solar panels on campus to provide clean electricity. In the meeting, he responded to what he perceived to be disrespect.

So, the meeting yesterday was frustrating because there was a lack of respect in the work that we had done and kind of a lack of respect for us. It seemed like the goal from their side was to push back and not commit to anything and say, kind of vaguely, ‘We're working on it,’ and it took us kind of really being very pointed in our questioning to get any sort of commitment or any sort of, ‘Okay, so what's your actual plan?’
James was seeking action to back up the university’s commitment to providing renewable energy as part of the university’s Climate Action Plan for 2025. He felt that not only was the administration disrespecting his work and the work of his peers, but that there was no urgency among leadership to fulfill the promise of the plan. “There’s no urgency there, and that lack of urgency is associated with a lack of effort and/or real concern related to the issue around climate change for those particular individuals.”

James continued to speak his truth to power throughout the meeting. He became particularly frustrated when administrators used what he believed to be falsehoods to justify their position.

What I did do was when they repeated falsehoods a second time in the meeting, I interrupted and I said, ‘Well, that's actually just not true, right?’ There was this statement around putting holes in our roofs, right? When we did the initial RFP for onsite solar ...that system was gonna be a ballasted system with no holes in the roof.’ So, part of it was kind of immediate fact checking and for better or for worse, I have very little time for BS from people above or below me, and so I was very direct in my questioning.

James' persistence and use of factual data to support his argument won at least one concession: the university would hire an energy advisor by the end of the school year to help direct its renewable energy plan. In his reflection on this single meeting, James demonstrated that he effectively challenges the status quo as part of his sustainability leadership practice.

**Communication of inspiring mission**
James sees the communication of an inspiring and inclusive mission as key to his leadership. One of the key functions of such communication is to make his passion for sustainability advocacy the norm for all. "If it [sustainability] was this easy and normal for me, and then looking around, if this is not normal for everybody else, what can I do to make it more normal, nevertheless?" Through communicating his passion for sustainability work, in addition to actively engaging with and listening to stakeholder needs, James hopes that he can inspire others to come to work together on sustainability initiatives in the campus community.

While recognizing that sustainability is a truly wicked problem, he expressed the belief that we, as a society, can develop sustainable solutions by which all systems, human and non-human, can survive and thrive. He spoke of how his time studying in Sweden inspired him.

The coolest and biggest takeaway is sustainability is possible. Humans aren't inherently broken and incapable of doing good things and making sensible policy and living in a sensible way that's more in tune with environmental processes and less destructive and all that other stuff. So, part of what was just so inspiring about studying how Swedish society operates, how they develop their environmental policy and how businesses interact with government there, and just how people relate to nature there. All these other things. It was amazing to live in and experience and talk to people in a society where these things mattered, where facts and science were expected in the decision making processes, where you can set aggressive goals and then bring in a whole lot of stakeholders to work on them.
James carries this hopeful message forward as he builds teams of diverse stakeholders to tackle the sustainability challenges in his campus community. While sustainability may seem like an impossible goal to achieve, James embodies optimism in his messaging to his peers. Are there significant obstacles to achieving sustainability goals? Of course. But James messages and models that with a lot of hard work, we can build a sustainable world.

**Integrity of systems mindset**

Finally, James reflected that demonstrating the integrity of the systems mindset is a key function of a sustainability leader. Of leaders he has admired he said, “I think being in support of what makes them effective leaders is charismatic, being able to speak to a room and hold attention and that sort of thing is pretty basic. And an ability to call others through lived example to be their best selves, I think is really important in leadership.” That call to be our best selves through a lived example is key. James has followed such leadership in the past and has made the commitment to live a sustainable lifestyle in order to provide an example to others.

I think in my personal life, doing everything I can to practice what I preach/have learned. So that means composting, not buying new stuff, and if needing new things getting it from resale or from friends or that sort of thing. In general, striving for simplicity and especially when it comes to stuff. And then, doing as much as I can to not fly. Continuing to be a vegetarian, and maybe going vegan or more vegan in the future. And I don't have a car. All of those things for sure. By making choices in his personal life that reflect a systems approach, James not only affirms his own beliefs, but sets an example for others to follow.
James did point out that individual choices like the ones detailed above are not enough on their own to make the impact needed to create a sustainable world. “I think that individual responsibility or actions like that are very limited in and it does a disservice to sometimes over focus on them as they are wholly inadequate as far as being commensurate to the scale of the challenge that we have.” However, if one’s choices become an example that others follow, the impact of such choices can be multiplied. And, as James said, practicing what he preaches is key to establishing himself as a leader worthy of following.

**Intersectionality**

When using open coding to analyze James’ retelling of his experience as a sustainability leader, two key themes emerged: the intersectionality of sustainability work and the power of experiential learning in helping James develop sustainability leadership skills. James explicitly stated that his definition of sustainability has expanded to include the intersectionality among human social and economic systems.

One of the big ways that my view of sustainability has grown or shifted through the work is just really coming to learn and understand that importance of intersectionality. And the need to show up and stand in solidarity with others on their sets of causes and that that is working on the whole and focusing on building that cross sectoral stronger approach. So going wider as opposed to more narrow. James’ Jesuit faith supports an intersectional view of sustainability work. By being of service to the underserved or marginalized, James can live both his faith and his passion for sustainability work.
James pointed out that using a cross sector approach for sustainability advocacy is not always the easiest road. Nevertheless, he persisted. "I think it is a very uphill battle to have more voices in the room...because there is a long running perception that environmental work is ... It is a privilege, and a space of privilege." While James described cross sector engagement as "an uphill battle" he clearly expressed a belief that this is not only the morally correct approach, but also one that allows him to leverage his own privilege to create a stronger coalition of willing stakeholders and to reframe the sustainability challenge as one of not just survival but of justice.

**Experiential learning**

James referenced the role of experiential learning - learning by doing - in his development as a sustainability leader. As a young person, he began embracing experiential learning as a Boy Scout, travelling to national parks across the country. "That relatively routine exposure to the outdoors, became something that I have really enjoyed and loved, and was definitely something I primarily owe my dad...So that was the initial, 'Wow, nature can be beautiful. And this is something that is important to me.'" This repeated exposure to the natural world deepened James’ connection to it and his feeling of responsibility towards it, leading him to choose environmental science as a major in college.

James has repeatedly engaged in internships, as well as study abroad opportunities. Immersing himself in different cultures, particularly in Sweden, and engaging in projects with real-world applications as he did during his internship in Vietnam, have had a deep impact on his evolution as a leader. As James said, he learns best "By failing. Trying and failing." This belief in experiential learning extends to
James role as an experiential trip leader for his university’s outdoor education program.

He believes in the power of experiential education to connect him to the natural world so much so that he commits himself to help his peers have a similar experience.