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Sustainability Leadership Programs: Emerging Goals, Methods & Best Practices

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Abstract: Colleges and universities are rushing to respond to an increasingly urgent challenge: developing the next generation of sustainability leaders. Although diverse in program design, teaching methodologies, assumptions, and skills taught, sustainability leadership programs, with experiential education as a core methodology, are rapidly emerging. This study – the first comprehensive attempt to analyze this phenomenon –explores three primary questions via interviews with 20 program directors and analysis of 50 programs' materials: 1) What program designs and teaching strategies are sustainability leadership programs utilizing? 2) What principles and assumptions underlie these training methodologies? 3) What are the key requisite skills for sustainability leadership development? The analysis reveals that programs currently focus on network-building, systems thinking and project-based learning. Program leaders define sustainability broadly, with an emphasis on social justice. They focus on communication and engagement in defining leadership. Challenges in program design include the tradeoffs of breadth versus depth as well as tradeoffs in training in specific skills versus analytical methods. Programs tend to either focus on leadership with sustainability as one application or sustainability education with leadership as a subtext. Consistent across programs is the emphasis on peer-to-peer learning. Best practices for program design include employing experiential learning, integrating disciplines, moving beyond sustainability knowledge, building community, expanding the boundaries of transformational leadership, change agent training, and acquiring specific skills. While the growth of sustainability leadership programs appears slated to continue in the near-term, the lack of effective assessment limits the ability to demonstrate success and may be a barrier to future growth.

Keywords: Sustainability, Leadership, Experiential Learning

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Colleges and universities across the U.S. and world are rushing to respond to an increasingly urgent challenge: developing the next generation of sustainability leaders. The rapidly emerging programs vary widely in goals and methods, departments and disciplines, curriculum, and co-curricular activities, yet share a common mission of sustainability leadership and change-agent training, with experiential learning as a key methodology. This study – the first comprehensive attempt to analyze this phenomenon – explores three primary questions: 1) What program designs and teaching strategies are sustainability leadership programs utilizing? 2) What principles and assumptions underlie these training methodologies? 3) What are the key requisite skills for sustainability leadership development? Using current training methods and theories as a guide, the analysis concludes with a set of best practices for building sustainability leadership skills through academic-oriented programs. These practices inextricably link experiential education and sustainability education, as experiential learning forms the basis for the skill-based training.

(Sustainability) Leadership Theory

Leading for sustainability is challenging in large part due to the "wicked" nature of environmental and interrelated social issues. "Wickedness" – defined as where "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" (Gough et al., 1998) – 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. These qualities require a leadership theory and practice suited to cross-boundary, systems-oriented thought and action (Shriberg, 2012).

Early leadership studies focused on the "great man" theory: leaders are born (mostly as white males), not developed, and have almost mythical qualities that ensure a bevy of followers (Gallagher, 2012). Modern leadership theory first emerged in the 1940s, following the machine-like principles of scientific management (Rost, 1997). This "rational man" model is implemented via command-and-control structures and a strict hierarchical division of labor (Dugan and Komives, 2010). In the 1950s, the transactional leadership theory emerged with the recognition that workers perform better when attention is paid to motivation. While still mechanistic and linear in its approach, transactional leadership emphasizes the role of workers in the success of an organization and a leader by offering rewards for better performance. Transformational leadership, popularized in the late 1970s and still the dominant leadership model taught in higher education (Hunt 1999) and the popular literature, takes this evolution one step further. Charismatic "transformational" leaders transform entire organizations toward a "higher ethical purpose" through their skills in visioning, communication and building trust and loyalty (Bass and Steidlmeier, 1999).

Environmental leadership as a subset of modern leadership theory is in the early developmental phase in the literature and in practice. Early environmental leaders tended to be naturalists and intellectuals (e.g., William Bartram and Ralph Waldo Emerson) or key figures in the civic reform movements of the early 20th Century (Andrews, 2012). Leadership arose organically,

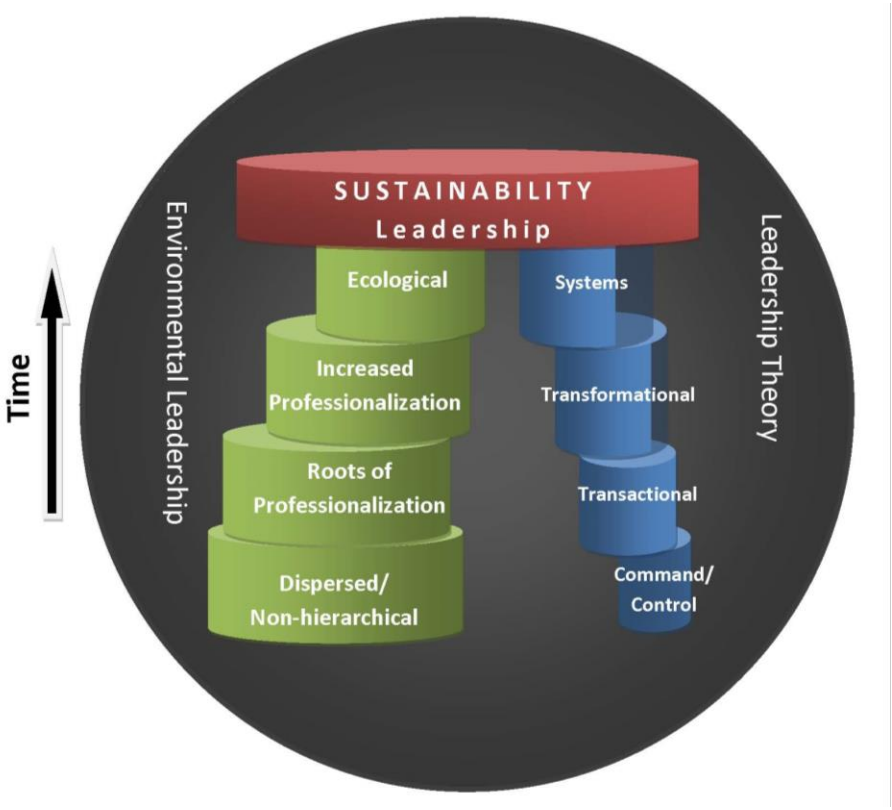
based on local concerns (e.g., sanitation or the protection of a particular area), often with a charismatic figure as the public voice (e.g., John Muir). Organizing locally via loose-knit networks of individuals or fledgling organizations that eschewed hierarchy and structure, most early environmental leaders relied largely on grassroots activism and popular support to propel their agendas. There was no academic field of environmental leadership or class of environmental professionals.

As the environmental movement evolved and expanded during the late 1960s and early 1970s, a class of environmental professionals and more permanent non-profit organizations formed. Concurrently, the fledgling area of environmental leadership studies began to emerge. This form of leadership differed from that of traditional businesses – organizations and their leaders maintain a looser, non-linear structure and function (Egri and Herman, 2000). Non-profit environmental leaders tend to maintain personal values that are more "ecocentric, open to change, and self-transcendent" than traditional managers (Egri and Herman, 2000). These leaders often exhibit both transformational and transactional leadership traits. However, it is unclear how these traits emerge, as training specifically for environmental leadership is sparse and focuses more generally on non-profit management, resource management or environmental business rather than on training for the specific challenges of moving toward sustainability.

Learning in part from the environmental movement and breaking with the traditional mode of leadership training, emerging leadership models with different foci and more decentralized modes of control are becoming more prevalent. For example, ecological leadership (Wielkiewicz and Stelzner, 2010), eco-leadership (Western, 2010) and deep systems leadership (Satterwhite, 2010) are based in principles of ecology and systems thinking, using an ecosystem or ecological web as the analogy for an organization. In this context, leadership is relational, context-dependent and deeply embedded in social, ecological and economic systems. However, these emerging theories have not deeply penetrated the literature and there is minimal training available. For example, Western (2010) argues that eco-leadership is a "lifestyle" more than a skill and that it "cannot be learned through skills training".

Figure 1 shows the evolution of leadership theory over time, as well as the recent emergence of environmental leadership. The concept of sustainability embodies a different, more integrative approach to leadership, visually represented as the bridge between environmental and traditional leadership theory. Given the "wicked" nature of sustainability-related problems and solutions, 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. This task goes far beyond defining the problem and saying "have at it" – sustainability leadership involves a specific skill set and mindset, and programs can and should be designed to build this. While there is not currently a recognized model for teaching leadership for sustainability, nor a standard set of skills for these leaders, programs are rapidly emerging in response to the urgent call (and high student interest) to develop more sustainability leaders, typically using experiential learning as a primary methodology. Our analysis is the first attempt to use data from existing programs and theories to provide a sustainability leadership model and methodology for aspiring programs.

Figure 1: Sustainability Leadership Conceptual Model



Methodology

Sustainability leadership programs were identified via three methods: 1) Review of relevant literature; 2) an English-language internet search; 3) "Snowball" sampling of sustainability leadership program directors or lead faculty to learn about other programs. The search was limited to programs which either have "sustainability" and "leaders" or "leadership" in their titles or have a significant emphasis on leadership skills building in addition to sustainability in their publicly available curriculum and related activities, as of April 2012. Programs which do not have a course specific to leadership nor an identifiable emphasis on leadership skill building were excluded from the study, even if they purported to "create" or "build" sustainability leaders. Moreover, programs which are very limited in duration (e.g., one-time seminars) were excluded. Using this methodology, the sample includes academic-based programs that have a specific focus on teaching students to lead for sustainability as well as three non-academic programs which share similar characteristics.

For all programs in the sample, demographic data about the institution as well as key program elements (including curriculum, co-curricular activities, degree granted, and project/service focus) were gathered. Drawing from the full sample and selecting for program diversity, 42 program directors or lead faculty were approached via email or online form for interviews. One follow-up email was sent if no response was received from the initial email. Twenty phone interviews were conducted and recorded using a Skype recorder. The audio recordings were transcribed and then analyzed using Atlas.tI6. Interviews followed a semi-structured format, covering the following questions:

1. What does "Sustainability" mean in your program? What about "leadership?"
2. What is your programmatic vision? What are your goals and desired outcomes?
3. What skills do your students acquire and develop? How do you know if these skills translate into success beyond the program?
4. How is your program different from a traditional leadership training program? What is the difference in your core assumptions and values?
5. What is the most effective component of your program? Which area has the most room for improvement?

Limitations from this methodology include: potential for selection bias due to lack of an established program list from which to base the selection; potential social desirability bias to email inquiries; and multiple interpretations of the interview questions, with some respondents answering from a personal perspective and others from a program perspective.

Sustainability Leadership Programs Overview

Although lack of a formal designation, affiliation and association make program tracking and monitoring difficult, our research found 50 programs that commonly use the words "sustainability" and "leaders" or "leadership" to describe their programmatic goals and methods, excluding academic majors or minors that do not directly address leadership. A majority (54%) of the institutions studied initiated these sustainability leadership programs in the past three years. Since sustainability leadership lacks standard metrics and best practices, the programs vary widely on nearly every parameter, including core methodologies and approaches (Table 1). As detailed by Deborah Ringling Gallagher in the introduction to Environmental Leadership: A Reference Handbook (2012):

> "In universities across the planet, educators from a variety of disciplines have developed programs to inspire and nurture a new generation of environmental leaders. These leadership education programs are housed in schools of the environment, undergraduate departments, interdisciplinary centers, and business schools. They seek to provide students with opportunities in the field to discover and practice emerging leadership skills. They draw on disciplines as varied as philosophy, communication, economics, and political science to cultivate skills needed to inspire collective action."

While programs are intended for multiple audiences, the majority focus on graduate or professional education (70%). Nearly half (46%) of the programs are for credit but do not grant degrees. 56% grant "certificates." Since there is not an industry standard for certification, these certificates – also sometimes identified as fellowships – are based on self-identified criteria specific to each program. While 40% use some online methodologies, nearly all programs report being outside the "normal" curriculum of colleges and universities.

Despite these differences and the somewhat chaotic push to create new curricula around sustainability leadership, our analysis reveals several common features:

- ***Network-building:*** 32 programs (64%), including many of the online programs, are either cohort-based (i.e., students move through the program together) or have strong team-building activities. Many programs are explicit in their hope to create a supportive learning community for participants and a long-term network of colleagues.

- ***Project-based Learning:*** 30 programs (60%) require significant project-based learning, often via directed projects or internships as a "leadership capstone." These projects are typically based in the local community but can involve extensive travel-based experiences.

- ***Systems Thinking:*** 21 programs (42%) explicitly focus on systems thinking as a framework for analysis and action. While the degree to which this focus carries through in curricular and pedagogical outcomes varies widely, systems thinking as a concept is highly valued in program design.

A common linkage between these programs is a focus on experiential learning. The strong prevalence of project-based learning and the interactions between participants are based on the potential of experiential learning to ensure that classroom lessons on sustainability can be integrated into practice.

Table 1: Profile of Sustainability Leadership Programs

Institution	Program Name	Student Population	Degree	Credit	Online	Group Project Required	Systems Thinking	Website
Arizona State University, School of Sustainability	*Graduate Certificate in Sustainability Leadership*	Graduate	certificate	Yes	yes	no	No	http://schoolofsustainability.asu.edu/graduate/graduate-certificate.php
Bard Center for Environmental Policy	*C2C Fellows*	Undergraduate	none	No	no	no	No	http://www.bard.edu/cep/c2c/
Belkinge Institute of Technology	*Strategic Leadership Towards Sustainability*	Graduate	M.S.	Yes	yes	yes	Yes	http://edu.bth.se/utbildning/utb_program.asp?PtKod=SLASL12h1&lang=en
Dalhousie University	*Certificate of Sustainability Leadership*	Undergraduate	certificate	No	no	no	No	http://www.dal.ca/faculty/sustainability/programs/slc.html
Dominican University of California	*The Sustainable Practices Certificate*	Professional	certificate	Yes	partial	yes	No	http://www.dominican.edu/academics/businesslead/professional-continuing/spc
Duke University	*Duke Environmental Leadership Program: Master of Environmental Management*	Graduate	M.S.	yes	yes	yes	No	http://www.nicholas.duke.edu/del/
Duke University	*Duke Environmental Leadership Program: Executive Education*	Graduate	certificate	yes	partial	no	No	http://www.nicholas.duke.edu/del/
Edgewood College	*Sustainability Leadership Graduate Certificate Program*	Professional	certificate	yes	no	yes	Yes	www.edgewood.edu/sustainability
Fielding Graduate University	*Sustainability Leadership Certificate: Fielding Graduate University*	Professional	certificate	yes	yes	no	Yes	http://www.fielding.edu/programs/hod/sustainability
Foresight Design Initiative	*Focus on Sustainable Urbanism*	Professional	none	no	no	yes	Yes	http://www.foresightdesign.org/education/focus-urbanism/
Foresight Design Initiative	*Foresight Immersion*	Professional	none	no	no	yes	Yes	http://www.foresightdesign.org/education/immersion-summer/
Foresight Design Initiative	*Foresight NEXT*	Professional	certificate	no	no	yes	Yes	http://www.foresightdesign.org/education/next/
Foresight Design Initiative	*In Focus*	high school	none	yes	no	no	Yes	http://www.foresightdesign.org/education/infocus/

George Mason University	*Environmental Conflict Resolution and Collaboration Graduate Certificate*	Professional	certificate	yes	no	yes	Yes	http://scar.gmu.edu/cert_environment.html
Ithaca College	*Sustainability Leadership*	Professional	certificate	continuing education credits	yes	no	Yes	http://www.ithaca.edu/gps/professional/devcert/sustainability/","www.ithaca.edu/gps/professional/devcert/sustainability/
Lancaster University Management School	*MA in Leadership for Sustainability*	Graduate	M.A.	yes	partial	no	Yes	http://www.lums.lancs.ac.uk/masters/ma-leadership-sustainability/
Lund University	*Master Programme in Sustainable Business Leadership*	Graduate	M.S.	yes	no	yes	No	http://www.lunduniversity.lu.se/o.o.i.s?id=24725&lukas_id=EAGSB
Malmo University	*Leadership for Sustainability: One-year Masters*	Graduate	M.A.	yes	no	optional	No	http://edu.mah.se/en/Program/SALSU
Ohio University	*Environmental Sustainability: Graduate Certificate.*	Graduate	certificate	yes	no	yes	No	http://www.catalogs.ohio.edu/preview_program.php?catoid=13&poid=2692&bc=1
Pennsylvania State University	*Center for Sustainability, Minor in Sustainability Leadership*	Undergraduate	minor	yes	no	yes	No	http://www.cfs.psu.edu/programs/minor-in-sustainability-leadership.html
Pepperdine University	*Certificate in Socially, Environmentally, and Ethically Responsible (SEER) Business Practice for full-time MBA Students.*	Graduate	certificate	yes	no	yes	Yes	http://bschool.pepperdine.edu/programs/full-time-mba/seer/
Polytechnic Institute of New York University	*Sustainability Leadership Certificate*	Professional	certificate	no	yes	no	No	http://www.poly.edu/EnterpriseLearning/programs/sustainability
Portland State University	*Leadership, Innovation and Sustainability MBA*	Graduate	M.B.A	yes	partial	yes	No	http://www.pdx.edu/gradbusiness/mba-portland-state-university
Rowan University	*Leadership Sustainability*	Undergraduate	certificate	no	no	optional	No	http://www.rowan.edu/studentaffairs/main_office/Leadership/tier3/
Ryerson University	*Certificate in Sustainability Management: Ryerson University*	Undergraduate	certificate	yes	no	yes	Yes	http://ce-online.ryerson.ca/ce/default.aspx?id=2913
Santa Clara University - Leavey School of Business	*Contemplative Leadership and Sustainability (C.L.A.S.P.)*	Undergraduate	certificate	no	no	no	No	http://www.scu.edu/business/clasp/
Saybrook University	*Building a Sustainable World*	Graduate	certificate	yes	yes	yes	No	http://www.saybrook.edu/phs/academicprograms/certificates/sustainworld

Southern Oregon University	*Sustainability Leadership Certificate*	Undergraduate	certificate	yes	no	no	No	http://www.sou.edu/business/certificates/csl.html
Sustainability Leadership Innovation Centre	*Circumpolar Leadership for a Sustainable Future (CLSF)*	Undergraduate	none	no	partial	yes	No	www.iisd.org/slic
Sustainability Leadership Innovation Centre	*Young Leaders for a Sustainable Future program (YLSF)*	graduate/ professional	none	no	partial	yes	No	www.iisd.org/slic
The University of British Columbia	*Summer Institute in Sustainability Leadership*	Professional	none	no	no	no	No	http://www.cstudies.ubc.ca/sustainability/summer-institute/index.html?utm_source=MediaplanetAd&utm_medium=PrintAd&utm_campaign=110309-SISL
The University of Chicago Graham School of Continuing Liberal and Professional Studies	*Leadership in Sustainability Management Certificate Program: The University of Chicago Graham School of Continuing Liberal and Professional Studies*	Professional	certificate	no	no	yes	No	http://grahamschool.uchicago.edu/content/leadership-sustainability-management-certificate-program
The University of Michigan	*Graham Environmental Sustainability Institute, Undergrad Sustainability Scholars Program*	Undergraduate	certificate	yes	no	yes	No	http://www.graham.umich.edu/education/undergrad-scholars.php
The University of Vermont	*Campus Sustainability Leadership Program*	Professional	certificate	yes	no	no	Yes	http://learn.uvm.edu/sustainability/leadership-programs/campus-sustainability-leadership-program/
Uni Freiburg	*Sustainability Leadership Training*	Undergraduate	none	yes	no	yes	Yes	http://www.sustainability-leadership.net/index.html
University of California - Berkeley Extension	*Leadership in Sustainability and Environmental Management*	Professional	certificate	yes	no	no	No	http://extension.berkeley.edu/spos/sustman.html
University of California – Irvine, Extension	*Sustainable Business Management*	Professional	certificate	yes	yes	no	Yes	http://unex.uci.edu/certificates/sustainability/business/
University of California - Los Angeles	*UCLA Institute of the Environment and Sustainability: Leaders in Sustainability*	Graduate	certificate	yes	no	yes	No	http://www.environment.ucla.edu/lis/
University of Cambridge Programme for Sustainability Leadership	*Masters of Studies in Sustainability Leadership*	Graduate	M.S.	yes	partial	yes	No	http://www.cpsl.cam.ac.uk/Accredited-Programmes/Masters-in-Sustainability-Leadership.aspx

University of Cambridge Programme for Sustainability Leadership	Postgraduate Certificate in Sustainable Business (PCSB)	Professional	certificate	yes	partial	yes	No	http://www.cpsl.cam.ac.uk/Accredited-Programmes/Postgraduate-Certificate-in-Sustainable-Business.aspx
University of Oregon	University of Oregon Sustainability Leadership Workshops and Certificate Program	Professional	certificate	no	no	no	Yes	http://sustain.uoregon.edu/index.php
University of Oregon	Oregon Leadership in Sustainability Program	Graduate	certificate	yes	no	yes	No	http://olis.uoregon.edu/
University of Oregon, Holden Leadership Center	Environmental Leadership Program	Undergraduate	none	yes	no	yes	No	http://envs.uoregon.edu/elp_program/
University of Denver, Natural Capitalism Solutions, and CORE	Certificate in Sustainability Leadership and Implementation	Professional	certificate	no	no	yes	Yes	http://natcapsolutions.org/index.php?option=com_content&view=article&id=348&Itemid=99
University of Toronto	Sustainability Leadership Program	Undergraduate	none	no	no	no	Yes	http://www.studentlife.utoronto.ca/Student-Resources/Leadership-Programs-and-Initiatives/sustainability.htm
Virginia Tech	Virginia Tech Center for Leadership in Global Sustainability	graduate/ professional	none	yes	partial	yes	Yes	http://gsi.cnre.vt.edu/index.html
Walden University	Leading Sustainability	Graduate	M.S.	yes	yes	yes	Yes	http://www.waldenu.edu/Degree-Programs/Masters/17453.htm
N/A	Andaman Discoveries: Leadership in Sustainability Program	Undergraduate	certificate	no	partial	yes	Yes	http://www.andamandiscoveries.com/study-tours-leadership-sustainability.php
N/A	Centre For Sustainability Leadership	Professional	fellowship	no	partial	yes	Yes	http://www.csl.org.au/
N/A	ELP: Environmental Leadership Program	Professional	fellowship	no	no	no	Yes	http://www.elpnet.org/

Defining Sustainability & Leadership

Interviewees exhibited a high level of consistency in their definitions of sustainability (Figure 2). In addition to environmental sustainability, half of the interviewees mentioned economic sustainability while over 40% mentioned social sustainability. Social justice plays a strong role in program director's definitions of sustainability – with the words "social", "justice" and "equity" being repeated frequently. This implies a strong focus on the "triple bottom line" of economic, social and environmental sustainability (mentioned explicitly in 33% of the interviews) alongside the traditional "meeting the needs of the presentation generation without compromising the needs of future generations" (Brundtland Commission) definition. The strong social justice focus is surprising, given that most of the curriculums focus on environmental management in addition to more general sustainability principles, with little explicit attention to social issues.

Figure 2: Definitions of Sustainability Reported by Program Directors

Most program leaders referenced moving beyond "sustaining" resources into definitions that refer to restoration and improving quality of life. For example, one interviewee called sustainability "a world that works" while another stated sustainability is "not just about the status quo, it's about making things better than they already are." Finally, a program director stated sustainability is about "reaching the potential of what human beings can be on the planet and helping us all grow." 44% of program directors included

an action-orientation or time-orientation in their framing of sustainability, demonstrative the active nature of the concept to program leaders.

Most programs define leadership as engaging people and utilizing group skills (over 50% of interviewees) (Figure 3). The most colorful comment on this form of leadership included: "It doesn't matter if you are a prostitute or prime minister, and everything in between, everyone has the potential to be a leader in sustainability." 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." Other words that appear often in leadership definitions include "process", "collaboration", "facilitation" and "engage", demonstrating the change orientation and group dynamics that program directors value.

Figure 3: Definitions of Leadership Reported by Program Directors

Program directors, most of whom have a sustainability background but not a leadership background, had difficulty answering the question of how their programs differed from traditional leadership programs. Three interviewees claimed that sustainability leadership is the same as other forms of leadership, just within a different context. Five others said that the multiple vested interests and disciplines make sustainability quite different. A number of respondents prefaced their answer to this question by acknowledging that they were not very familiar with transformational leadership theory and the other basic theories taught in traditional leadership programs.

Program Designs & Challenges

Sustainability leadership program directors struggle with the program design tradeoff of depth versus breadth. Just over 50% of program directors interviewed focus on "broadening sustainability literacy" priorities while slightly less than 50% focus on "inspiring sustainability leadership" in depth. This choice involves a major tradeoff in terms of training time and focus. Program directors also struggle with the degree to which programs should focus on specific, tangible skills versus emphasizing a general way of thinking. In terms of skills, 60% of interviewees cite effective communication as a critical outcome of their programs. They view communication broadly: in the context of stakeholder engagement, negotiating power bases, interaction between participants, coalition building, communicating one's own story, relationship establishment, facilitation, managing multiple perspectives, articulating a cause, negotiation skills, and public speaking skills, for example. One Program Director explains the importance of effective communication by saying, "you can be the most effective leader, very skilled, very knowledgeable, but if you cannot communicate effectively the need for people to be involved, how they should be involved, and how to in turn engage others and how to promote and communicate your success, it is going to fall flat."

Approximately 33% of program directors interviewed cite systems thinking as a key skill and perspective they are attempting to build. The implementation of this perspective varies widely across programs, with – for example – separate courses on systems thinking, an integrated approach to systems thinking throughout the program or a retreat focused on systems thinking. One Program Director explains that he wants his students to have "the ability to look at systems as a whole, and to think about ecological systems and at the same time think about economic and social systems in a systems kind of way."

25% of interviewees cited self-assessment and self-analysis as a key skill that their programs build. Using phrases such as "helping people recognize their potential", "telling of your own story," "understanding the first person you lead is yourself," and "being reflective about your own leadership journey," programs strive to use self-analysis as a critical learning framework.

Program directors cite their students as the key factor in their program's success, with recruitment as a key program design challenge and opportunity. "Peer-to-peer learning" or "diversity of participant perspectives" were noted as the most effective program components by 50% of interviewees while the value of personal experiential "story sharing" was very common as well. This community-based model leads to more non-traditional teaching methods, with lectures compromising a relatively small proportion of teaching methodologies and experiential learning emphasized. Group projects, retreats, community engagement, learning circles and other peer-based and cohort-building activities are key parts of the sustainability leadership training programs that come from this perspective.

Influence of Program Design on Approach to Leadership Training

Programs that have degrees associated with them use more traditional leadership theory and training techniques than non-degree programs. Relying more on transformational leadership and other aspects of leadership theory, degree-based programs are more grounded in the literature and standard practice. For example, Pennsylvania State University's minor in sustainability leadership combines courses to enrich knowledge of sustainability with a course that covers general leadership topics (Ethical Leadership, Leadership Studies, and Leadership for Social Change are all possibilities to meet this requirement).

Cohort-based programs define leadership in terms of group engagement and collaboration. They report communication as a key skill in far higher numbers than programs which are asynchronous or not based on a cohort model. Moreover, cohort-based programs value peer-to-peer learning and diversity significantly more than non-cohort programs. Conceptions of sustainability leadership as a group process are heavily influenced by this program design.

Programs that deliver the majority of their content online have, counter-intuitively, the same level of emphasis on peer-to-peer learning as brick-and-mortar programs. Program directors report that, since online programs are a relatively new methodology and are often under increased scrutiny, they have worked to maintain and enhance peer-to-peer learning. For example, the Duke Environmental Leadership Master of Environmental Management has a place-based, experiential program orientation as a way to develop community before the students begin interacting with each other primarily online.

Situational and grassroots leadership is emphasized in 50% of the programs in which there is a professional development focus. These programs instill in their participants that, no matter what their job is, they have the potential to lead for sustainability. Moreover, programs that are focused on professional development have goals, visions, and outcomes that are centered around leadership skills for sustainability, while the programs that are not focused on professional development are centered around broadening sustainability literacy. Professional development programs more frequently address systems thinking as a key skill than non-professional development programs.

The three programs not housed in academic institutions (Table 1) focus on collaboration and individual strengths contributing to larger group goals and vision. These programs communicate that leadership for sustainability requires a different kind of training than has traditionally been used to teach leadership skills. Moreover, these programs communicate a stronger focus on developing leaders than teaching sustainability. These programs are very intentional in their participant selection, citing this as one of their most effective program components.

Sustainability Literacy vs. Leadership Training

Sustainability leadership programs fall into two main categories: Leadership training with sustainability as the application, and sustainability education programs with leadership as

one application. Leadership training programs are often located in professional development programs, or other forums that traditionally provide this type of training. Sustainable education programs tend to be located in environmental or sustainability schools and departments that are branching out into leadership training.

Sustainability education programs introduce the concept of leadership through the lens of sustainability, drawing on ecological theory and environmental education. They tend to mirror more traditional environmental or sustainability academic programs, with leadership as a sub-theme for training. Courses and programs introduce the big themes and wicked problems associated with sustainability and use leadership as a context for analysis. 66% of these programs report a focus on experiential learning through projects.

Leadership programs with sustainability as the application tend to have a narrower and well-defined leadership training path, likely because this is the traditional realm of leadership training and sustainability has only recently been added as a training pathway. The programs – typically offered for advanced students or current professionals – focus more on self-reflection, communication and specific skills associated with leadership, under the assumption that students have already achieved basic sustainability literacy. 62% of these programs highlight systems thinking; transformational leadership is commonly taught. Professional development is a key mission as opposed to basic sustainability literacy, with cohorts typically used for benchmarking self-analysis as well as network analysis. For example, the Centre for Sustainability Leadership calls the first phase of their program, "Going within." This phase focuses on student development and personal changes. The students are then matched up with a mentor that will help them succeed in their professional field of interest.

The differences between these types of programs are significant. Although many programs follow a hybrid model, the different perspectives and baselines drive program design and implementation and, ultimately, the student experience and skillset derived from participation.

University of Michigan's Experience

The University of Michigan (U-M) has two sustainability leadership programs that were designed using the sustainability leadership theory outlined in this article combined with the best practices of other sustainability leadership programs around the country and world. The programs have wrestled with the inevitable tradeoffs in program implementation, particularly in terms of placement within the university curriculum and with how much sustainability content to deliver as opposed to specific skills and frameworks for analysis. Being embedded within an interdisciplinary institute (the Graham Environmental Sustainability Institute) that sits directly under the Provost offers advantages in terms of visibility, reach and resources but disadvantages in terms of curriculum delivery. Both programs opted for a strong cohort model with a basis in skills, using alternative means (e.g., a summer reading) to deliver content-based

knowledge. Both programs are explicitly designed to prepare future leaders to help solve the "wicked" problems that comprise the grand challenge of sustainability.

The Graham Undergraduate Sustainability Scholars Program combines leadership training with organizational change theory and practice, emphasizing interdisciplinary thinking and action. The program largely eschews sustainability literacy in favor of leadership skills development through a systems thinking, project-based, experiential curriculum. The program accepts up to 30 high-performing sophomores each year from a diverse set of majors and schools/colleges. Scholars engage in a two-year, 11-credit series of coursework, which includes (in approximate chronological order): Interdisciplinary Thinking for Sustainability (1 credit); Sustainability & the Campus (3 credits); Field-Based Sustainability Course or Experience (3 credits); Interdisciplinary Sustainability Elective (3 credits); Capstone Seminar on Sustainability Leadership Development (1 credit).

Beyond coursework, U-M Scholars participate in leadership and cohort-building activities to strengthen connections and foster broad-based learning. For example, Scholars begin the program with a 3-day retreat then visit a ropes course early in the academic year to build leadership and group process skills. Scholars meet informally at least monthly to discuss topics from a Northwest Earth Institute sustainability discussion guide, view documentaries or meet with practitioners. They also engage with speakers and others on campus in an informal setting at least once per semester. In addition, each semester features several purely social events in addition to informal networking at academic events. Finally, Scholars create many other opportunities to engage and connect on their own, which the Graham Institute helps to facilitate and support.

Similarly, the Graham Doctoral Sustainability Fellows Program reaches future sustainability leaders in academia and beyond at a critical stage in their intellectual development: while they are writing their dissertations. The goal is to create a lifelong "Community of Scholars" devoted to developing and implementing innovative ideas in pursuit of sustainability. The group represents a wide range of interests, and each recipient receives up to $50,000 over two years to support their research, academic studies and intellectual development. Fellows meet monthly in one of two formats. The first format involves student presentations of their doctoral work in the context of the larger sustainability questions it raises. After the brief presentation, a Fellow from a different field facilitates a conversation that proceeds online (through a blog) as well as in person (through an informal gathering), culminating in a discussion during the next monthly seminar. The goal is to move beyond the micro-details of doctoral research into the realm of deep sustainability analysis. At the end of each academic year, the Fellows present the results of their discussions to their academic advisors and other key stakeholders at a celebratory event. The second format is a series of leadership skills building workshops on topics such as communication, navigating interdisciplinary research, and preparing for job searches.

Outside of seminars, Fellows collaborate on a project, examples of which include a published paper in Sustainability Science on the interdisciplinarity of the use of

sustainability in different fields, the creation of a field-based sustainability course (for Graham Sustainability Scholars and others) in Detroit and the formation of a new journal – *Michigan Journal of Sustainability*. Through this mix of financial support, intellectual exchange, interdisciplinary collaboration, and social activities, U-M seeks to build future sustainability leaders with the ability to understand and effectively communicate the complex and interdisciplinary nature of sustainability.

Lessons Learned for Program Design & Implementation

Sustainability leadership programs are tremendously diverse. With highly variable participant demographics comes a wide array of program needs and desires. Programs are focused on providing sustainability knowledge, inspiring leadership for sustainability, or attempting to do both. However, this emerging area suffers from a lack of common frameworks, methods and metrics. Therefore, a key challenge is to identify best practices that allow for a diversity of program delivery formats yet effective outcomes that translate into success in the field. Our analysis of program materials, interviews with program directors, and case study at the University of Michigan reveals a set of best practices for program design and implementation based on self-reports of effective outcomes combined with review of leading theories. These best practices include:

- **Employing Experiential Learning:** Programs should move beyond the classroom into the local community or other setting where application can be practiced in an experiential way. Much of this experiential learning can come from within leadership cohorts. Without practical application, the programs feel disconnected and disengaged.

- **Integrating Disciplines:** 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. With an emphasis on connectivity and leverage points, sustainability leadership training can provide strong professional preparation.

- **Moving Beyond Sustainability knowledge:** While sustainability has the potential to be an integrative leadership theme, programs should inspire thinking and action that move beyond the static nature of sustainability into restoration, resilience and other strengthening concepts. 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.

- **Building Community:** While the quality of instruction is of obvious importance, the key criterion for success in skill development is the quality of the community of practice built around the program. Whether online or brick-and-mortar,

sustainability leadership students learn best from their peers, who often challenge them in unique and innovative ways. Strong program design creates the platform for this community building, often via experiential learning.

- **Moving Beyond Transformational Leadership:** Programs that start and end with transformational leadership – the typical model in business schools and popular literature – miss the rich impact that systems and ecological leadership theory have on organizations and individuals. While the vision and shared sense of responsibility that transformational leadership engenders can be a base of training, 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.

- **Change Agent Training**: Students go into these programs less interested in building "literacy" than in becoming or advancing their abilities as change agents. Recognizing ecological and interrelated social and economic threats in the program can serve as a launching point for change agent training.

- **Acquiring Specific Skills:** Programs should have a specific set of skills that students will acquire or hone through their program. High on this list is visioning and communication as well as systems thinking and self-assessment, with many other potential skills as distinguishing points for specific programs. Moreover, programs should link specific training techniques with the identified skill-based outcomes, a major gap in the programs to date.

In implementing these best practices, sustainability leadership programs can begin to tackle the challenge of distinguishing themselves from "standard" leadership programs. If these programs are going to continue to grow and thrive into the future, this distinction will need to emerge systematically and thoughtfully.

Although each program leader has a different idea of what success means, there is a strong sentiment that sustainability leadership programs are translating to success for participants. However, program evaluation has generally not moved beyond anecdotal evidence. Program directors cite the relative newness of programs as well as a lack of clarity for the metrics to evaluate program success as the reasons for the lack of formal assessment. Metrics that arose as possibilities included: environmental and social impact, job acquisition, performance in jobs, and alumni networking. Unfortunately, since most programs have not begun to tackle program evaluation using these metrics, there is potential for a widespread questioning of the efficacy of these programs. While there is no sign of the sustainability leadership program boom slowing in the short-term, careful attention to evaluation – and incorporating this feedback into program design – will be key to long-term success and stability.

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