Assessment of the status and alignment of practitioners' leadership in the environmental sector

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ASSESSMENT OF THE STATUS AND ALIGNMENT OF PRACTITIONERS’ LEADERSHIP IN THE ENVIRONMENTAL SECTOR

by

Marie Véronique Couttee

A Thesis
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ABSTRACT

The scientific and technological achievements of the 21st century have failed to tackle the complex and transboundary nature of environmental challenges that instead requires effective leadership and management strategies. Collectively, leaders need to emerge across a wide array of disciplines to lead the cultural evolution needed to stop the anthropogenic destruction of our planet. However, the limited usage of social and behavioral science has left a severe gap in the leadership capacity and knowledge of the environmental sector. This study surveyed practitioner’s leadership behaviors using an adaptive leadership theoretical framework. It investigated the role of academic and professional experiences in shaping these behaviors, including an investigation of the demand and supply for leadership training programs. A mixed-methodology study was carried out collecting data from 171 practitioners from 42 countries through an online questionnaire. The data revealed a gap in leadership behaviors between individuals without formal power and individuals with formal power, with the latter showing a more definite propensity at adaptive leadership behaviors. This demonstrated the need for homogenous training exposure across organizations to ensure the alignment of values and practices within organizations. Practitioners deemed that leadership and management training was the key missing factor in achieving effective environmental management strategies. This study provided preliminary support for more accessible leadership training that focused on conflict management, diversity, equity, and inclusion. There were numerous barriers for practitioners’ leadership skills development, especially at the early stages of their careers, such as cost and lack of organizational support. Nonetheless, this research offered an opportunity to improve the policies and curriculum of academic and professional training in the environmental sector.
ACKNOWLEDGMENTS

First and foremost, I would like to thank my academic advisors Professor George Robison and Professor Andrei Lapenas, for all their help, mentorship, and advice in producing this document.

I owe a huge thank you to my committee member and mentor Dr. Amielle DeWan for her invaluable advice on my research and career aspirations throughout my time at the University at Albany but also for helping me create the network needed for this research.

Thank you to the University at Albany Margaret M. Stewart Fund and the University at Albany Charles and Harriet Adams Fund for their generous contribution to my research. The funding provided by the UAlbany foundations in combination with a scholarship from the Environmental Leadership Program (ELP) allowed me to take in the ELP National Leadership program. This experience was extremely beneficial in framing my research questions and allowed me to create a fantastic and supportive network of environmental practitioners across the United States.

I want to thank all the leadership programs administrators interviewed for the pre-market survey that generously shared their time and ideas on leadership training programs: Renee Kivikko, Land Trust Alliance; Nina Fascione, Emerging Wildlife Conservation Leaders; Errol Mazursky, Environmental Leadership Program; Sarah Clark, Institute for Conservation Leadership; Eric Stiles, New Jersey Audubon Society; Josephine Crouch, Youth for Wildlife Conservation. I am very grateful to the 171 practitioners worldwide who took the time to respond to the online survey, thus making this research possible.

Lastly, I am incredibly grateful to my family and partner, Nate, for always supporting me through all my endeavors. They kept me going on, and this work would not have been possible without his input.
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CHAPTER 1

Environmental leadership and its challenges.

1. Introduction

Leadership has been at the heart of social science for almost a century (Mumford, 1906; Van Fleet and Yuki; Van Fleet and Yukl, 1986) with thousands of books, articles, and papers on the subject. The evolution of the world’s economic structure has brought a new wave of leadership training to the business world. Individuals have been encouraged to develop the desired knowledge, skills, and attitudes to boost organizational capability and performance (Sogunro, 1997). On the other hand, the environmental sector has been very slow in adopting and championing leadership training to boost organizational performance.

Consequently, environmental practitioners have been struggling over the last 40 years to make a significant cultural change to reverse the tremendous anthropogenic destruction of the world's ecosystem. Despite the numerous success stories of environmental practitioners successfully saving species from the brink of extinction or rehabilitating whole ecosystems (Meffe, Ehrenfeld and Noss, 2006), environmental practitioners have been struggling to tackle complex and transboundary environmental issues. There have been multiple challenges at the local and institutional level trying to run organizations effectively with restricted funds and limited resources. Regrettably, practitioners have not always equipped with the necessary interdisciplinary skills and expertise to tackle these challenges.

There were two primary forms of experiences that seem to be a challenge to environmental leadership: management concerns or issue-based obstacles (Dietz et al., 2004)). Leadership theories can be applied to overcome these obstacles especially when these theories are exercised
by anyone who sees the need for change (Heifetz and Heifetz, 1994). Without an exposure to practical training on modern leadership theory, academic training has failed to prepare environmental practitioners at an early stage of their career to navigate these challenges (Manolis et al., 2009) and to embrace their position as actors of change.

Effective leadership should be considered seriously for its impact on the success of environment programs (Black, et al., 2011) because of the limited resources of the environmental sector. The concept of leadership has been extensively studied for years but has been lacking in the environmental sector, regardless of it being a valuable tool in practitioners’ toolkit (Dietz, et al., 2004). While doing the literature search, it became apparent that very limited resources have been dedicated to the study of environmental leadership.

There has been a vast array of leadership theories and concept since the early 1900s and not all of them has been applicable to the challenges of environmental leadership. Before the 1950s, leadership theories were framed with a top-down and bureaucratic paradigm (Senge, 2006) with values that reflected the transactional nature of business. For instance, leadership was defined as a combination of traits that facilitated the leader's ability to influence group members to complete a specific task (Tead 1929). This definition was symbolic of the early literature surrounding leadership theory, whereby leaders were perceived as this unique and heroic character with their success attributed to their idiosyncrasies.

In comparison, modern leadership literature saw a consequent shift to more functional definitions (Senge, 2006; Bruyere, 2015; Uhl-Bien, Marion and McKelvey, 2007) with leaders being studied for their behavioral strategies (Manolis et al., 2009; Trivellas and Drimoussis, 2013; Gordon and Berry, 2006) rather than their traits (Tead, 1929; French, Raven and Cartwright, 1959; Cooley, 1902). These modern concepts had a transformational approach, and
their impact on organizational performance made them widespread beyond the business world, in healthcare and education. Over the last ten years, the environmental sector begun to use these theories and applied them to complex environmental issues such as climate change (Varady et al., 2013).

Furthermore, the business community has been pioneering the adoption of transformational leadership concepts with thousands of publications on the topic of leadership theory followed closely by the education and healthcare sector. In contrast, a review of the environmental science literature by Evans et al., (2015) over ten years offered of a stark contrast with only 187 papers relevant to environmental leadership research which offered information on 1) how leadership was conceptualized or defined by authors, 2) the factors of effective environmental leadership, 3) the governance outcomes associated with leadership and 4) how the relationship between leaders, leadership and outcomes were construed (Evans et al., 2015). Another study by Manolis et al., (2009) highlighted the lack of information on environmental leadership based on the lack of a functional definition for the term itself.

A literature survey of current management structures in place in the environmental sector offered a glimpse into the forms of leadership that were commonly used to manage environmental programs. In theory, effective policymaking should happen through the collaboration of scientists, policymakers, and managers. Regrettably, environmental policies have been mostly designed with a top-down approach by national or international governments, international treaties, or large international conservation organizations or corporations (Abrams et al., 2009). Additionally, policies have been created without a complete picture of the social dimensions of the environmental challenges as they occurred on the field. The breakdown of this method was more significant in developing countries were the technocratic approach of the 20th
century that failed to bring either poverty relief or protection of natural resources (Adams et al., 2004; Sanderson and Redford, 2004).

In the not-for-profit sector, where the lack of resources and staff often led to environmental practitioners having to take on leadership roles without being in a position of authority. In these positions, individuals were expected to inspire and mobilize others to achieve purposeful change (Crosby and Bryson, 2005; Heifetz and Heifetz, 1994; Manolis et al., 2009). Yet, leadership development was mostly offered to individuals in top organizational or political positions. Moreover, there has been discomfort and reluctance in the exploration of leadership training for individuals without power (Gordon and Berry, 2006).

Lastly, the promotion of diversity, equity, and inclusion in the decision-making process, has been insufficient, with minorities still being oppressed, ignored, and often silenced (Heifetz and Laurie, 1997). Without diversity in the environmental movement, the cultural significance of the land, and the natural systems of a community would never be fully explored (Abrams et al., 2009). It has been difficult to preserve natural resources without having people at the heart of the solution.

Nonetheless, there has been emergence of environmental "champions" or environmental leaders in the public and private sector. Ergo, these leaders were not numerous; there was much to be learned from these individuals. They had a vision of generating a cultural evolution through the reform of society and were thus called "moral entrepreneurs" (Ehrlich, 2002; Becker, 1963). Learning to create organizations and spaces that would empower individuals at an early stage of their career and provide them with leadership tools would promote the emergence of moral entrepreneurs.
Leadership practices as it related to these individuals, were hence called "environmental leadership." For this study, the term "environmental practitioner" was used as an umbrella term for individuals working in the environmental sector toward the protection and preservation of the environment and wildlife. This term also included individuals working on the human dimensions of natural resources management, including the behavioral and social science sector. Adapted from Manolis et al. (2009), environmental leadership was defined for this study as follows: practitioners that were shaping environmental science through research and/or working on the integration of environmental science into policy, management, or society at large, irrespective of their formal position.

In this chapter, a brief description of leadership concepts was given, followed by the challenges related to leadership practices and research in the environmental sector. There has been a lack of research into environmental challenges and how it was related to effective environmental leadership strategies. In the following chapters, this study will investigate the approach of environmental practitioners to their leadership (Chapter 2) and the importance of leadership training into shaping practitioners' approach to their leadership. (Chapter 3).

2. Overall Purpose of Study

This study was focused on the use of environmental leadership concepts in the creation of comprehensive environmental management strategies. The overall aim of the research was to gather data that would offer recommendations for individuals, organizations, and institutions to promote effective environmental management strategies.

A mixed-methodology approach was used for this study collecting both quantitative and qualitative data from an online questionnaire. This study used adaptive leadership as a theoretical framework to design and analyze the result of the online questionnaire, that collected data on
how practitioners conceptualized their leadership style (chapter 2) and the impact of leadership training on practitioners’ professional development (chapter 3).

In chapter 2, an adaptive leadership scoring system was used to examine the propensity of practitioners to adaptive leadership behaviors. This chapter also included a survey of effective environmental strategies based on practitioners’ experiences. In chapter 3, leadership training programs that practitioners attended were evaluated. This evaluation included an assessment of the demand and supply for leadership training relevant to the professional needs of environmental practitioners.

This study was designed to be thought provoking and provide more insight on the influence of leadership training in boosting capacity building strategies in the environmental sector. This understanding is crucial to inform academic and professional training programs by providing answers to questions like: how much resources must be devoted to leadership training programs; how academic training can be adjusted to meet the needs of environmental leaders; how do leaders with leadership training differ from leaders without leadership training.

3. Research Questions & Objectives

Based on two guiding hypotheses a series of research questions were designed for this research. The first hypothesis was that leadership training was necessary to development of the leadership’s skills needed to effect change in organizations which also assumed that current academic training was failing to train practitioners in developing these skills. The second hypothesis was that practitioners were more likely to adhere to adaptive leadership practices when they received leadership training. Through these hypotheses, the following research questions were formulated:

1. Is there a relationship between professional experiences and adaptive leadership behaviors?
2. Is there a relationship between academic experiences and adaptive leadership behaviors?

3. Is there a relationship between management level and adaptive leadership behaviors?

4. Is there a relationship between participation in leadership training and adaptive leadership behaviors?

5. What leadership skills practitioners valued for effective environmental leadership strategies?

6. What experiences allow them to develop the skills they value?

7. According to environmental practitioners, how accessible is leadership training?

8. What experiences practitioners had with their leadership training programs?

9. To what extent are practitioners interested in leadership training?

10. What skills do practitioners develop from leadership training?

The objectives were as followed:

- To collect data on the demographics of environmental practitioners involved in the study.
- To gather data on leadership skills relevant to environmental practitioners for effective management.
- To collect data on the supply of leadership training programs within the sector.
- Collect feedback of practitioners on their participation in leadership training programs.

4. Literature Cited


Ehrlich, P. R. (2002) 'Human natures, nature conservation, and environmental ethics: Cultural evolution is required, in both the scientific community and the public at large, to improve significantly the now inadequate response of society to the human predicament', *BioScience*, 52(1), pp. 31-43.

Evans, L., Hicks, C. C., Cohen, P. J., Case, P., Prideaux, M. and Mills, D. J. (2015) 'Understanding leadership in the environmental sciences'.


CHAPTER 2

Assessing the Status and Alignment of Environmental Leadership Using an Adaptive Leadership Framework

1. Introduction

A study by Evans et al., (2015) identified 14 leadership styles derived from the environmental science literature: adaptive, collaborative or distributive, complexity, democratic, entrepreneurial, intellectual, knowledge, political, process-oriented, servant, systems-thinking, tipping-point, transformational and visionary (Table 1).

After a literature review of these different styles, adaptive leadership was selected as the theoretical framework for this study, as it was the one style that provided a comprehensive and holistic approach to leadership. Additionally, adaptive leadership style has been extensively used and applied in the environmental sector in the management of natural resources (Salafsky and Margoluis, 2004; Tompkins, E. L., & Adger, W. N. 2004; Manolis & al., 2009). Moreover, adaptive leadership viewed leadership as a concept that could be applied regardless of the position of formal power. This offered the opportunity to critically analyzing and testing whether practitioners had a propensity at adaptive leadership behaviors (Table 2) as defined by Northouse, (2018) based on their position of authority.

Table 1. The 14 leadership styles and their definitions as discussed in the environmental science literature. Adapted from Evans, et al., 2015

<table>
<thead>
<tr>
<th>Styles</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive</td>
<td>Focus on learning how to address problems with a flexible and adaptive mindset instead of only focusing on the technical aspects of the problem (Manolis et al., 2009).</td>
</tr>
</tbody>
</table>
Collaborative or Distributive | Encourage the creation of a network and partnership between different actors (Gupta *et al.*, 2010; Pahl-Wostl *et al.*, 2007).

Complexity-cognizant | Leadership within a complex adaptive system, with an in-depth understanding of the underlying complexities (Lockwood *et al.*, 2012).

Democratic | All parties are involved in the decision-making process and are held accountable for their decisions (Biggs, Westley, and Carpenter, 2010).

Entrepreneurial | Provide guidance, led by example, encourage actions, present information in the most favorable light, and use negotiating skills to create mutually acceptable deals between parties (Gupta, 2010; Gupta *et al.*, 2010).

Intellectual | Rely on the power of ideas to influence the outcomes of decision-making (Gupta *et al.*, 2010).

Knowledge-based | Dependent on the frequency on which an individual in a position of higher authority is consulted for their knowledge (Kenward *et al.*, 2011).

Political | Leadership by ‘Chief Executive; or top-level political official (Galaz *et al.*, 2011; Smith, Vogel and Cromwell Iii, 2009).

Process-oriented | Generate conditions that encourage different viewpoints, skills, and resources. Promote participation of a broad range of stakeholders by utilizing the knowledge and institutional engagement (Pahl-Wostl *et al.*, 2007; Wale, Chishakwe and Lewis-Lettingston, 2009).

Servant | All parties involved in the decision-making process are held accountable for their decisions (Biggs, Westley and Carpenter 2010).
Systems-thinking  Rely on continuous learning to improve programs. Also rely on cooperation and self-motivation rather than an output-oriented and reward/punishment approach (Black, Groombridge and Jones, 2011).

Tipping-point  Rely on the principle that once the belief and energies of stakeholders are engaged, a new idea can spread like an epidemic. An individual who calls for change, concentrate their resources on essential matters, contribute to the engagement of key players and who successfully silence opposition is the trigger to the epidemic (Kim and Mauborgne, 2003).

Transformational  Recognize opportunities and can change obstacles and barriers to opportunities (Folke et al., 2005).

Visionary  Encourage long-term vision and have reformist learning (Folke et al., 2005; Gupta et al., 2010).

The concept of adaptive leadership emerged in the work of Heifetz, R.A. and Heifetz, R., (1994) in the book *Leadership without easy answers*. The title of the book itself was representative of the situation that environmental practitioners were facing while tackling complex and global environmental issues. Despite the lack of rigorous scientific data on the concept, with mostly descriptive theories, it offers viable strategies for how practitioners could succeed in tackling challenges that occurred within complex systems (Northouse, 2018).

*Table 2. Definition of the six categories of behaviors of adaptive leadership being tested in the questionnaire. Adapted Northouse, (2018).*

<table>
<thead>
<tr>
<th>Adaptive leadership behaviors</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get on the balcony</td>
<td>The degree to which the subject stepped back to see the complexities and interrelated dimensions of a situation.</td>
</tr>
<tr>
<td>Identify adaptive challenges</td>
<td>The degree to which the subject recognized adaptive challenges and did not respond to these challenges with technical leadership.</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Regulate distress</td>
<td>The degree to which the subject provided a safe environment in which others could tackle severe problems. It also reflected the level of confidence and calm of the subject during conflictual situations.</td>
</tr>
<tr>
<td>Maintain discipline attention</td>
<td>The degree to which the subject got others to face challenging issues rather than avoiding severe problems.</td>
</tr>
<tr>
<td>Give the work back to the people</td>
<td>The degree to which the subject empowered others to think for themselves to facilitate problem-solving.</td>
</tr>
<tr>
<td>Protect leadership voices from below</td>
<td>The degree to which the subject was open to unusual or radical contributions from low-status group members.</td>
</tr>
</tbody>
</table>

This follower-centered approach is focused on channeling the energy of all players to navigate rough and uncertain situations within a dynamic environment. It is also advocated as a successful strategy for creating spaces where followers are encouraged and supported to deal with inevitable changes in beliefs, attitudes, perceptions, and behaviors that arose in moments of crisis (Northouse, 2018).

In their study Uhl-Bien, et al., (2007) described leadership as a connection that went beyond the power relationships and that this connection represented only a slight fraction of the forces that guided the complex interactions leading to behavioral change (Heifetz and Heifetz,
1994; Plowman et al., 2007). This complexity has been the underlying nature of the work of environmental practitioners who have been maneuvering and managing projects (Game et al., 2014). The implications of such complexity were apparent in the theory and practical solutions used in the environmental sector. Adaptive leadership theory acknowledges this complex and uses it as a guiding principle for problem solving.

In practice, environmental programs usually possess multiple objectives, but the solution to one problem can antagonize the ability to reach more than just one objective. An example would be the decision to ban logging because of deforestation and ecosystem destruction without considering the impact that it would have on the livelihood of surrounding communities. That being the case, acknowledging the complexity of environmental problems should be the first step in the creation of effective environmental programs. It would also be crucial to recognize that approaches, tools, and even institutional structures used in the environmental sector were generally suited to simpler, more compliant systems (Game et al., 2014). The implications of this for environmental leadership therefore suggest a need to restructure environmental program management in a way where programs can be tackled in a multidisciplinary and holistic manner.

In other words, a multidisciplinary approach is required to measure the impacts of environmental programs on communities successfully. A desirable impact will be a cultural evolution that would cause the severance from past values and beliefs to re-incorporate and embrace new values that reject individualism, dominion over nature, and anthropocentrism (Berzonsky and Moser, 2017). This cultural evolution has been the vision of numerous organizations but has hardly been achieved. The external pressures, such as socio-cultural contexts, attitudes, beliefs, norms, prices, and policies (Cinner, 2018), has often been insurmountable. Adaptive leadership is proposed as the right approach toward the creation of a
supportive environment to foster change amidst this complex web of external pressures (Manolis et al., 2009; Corazzini et al., 2014; Lee, 1999; Salafsky and Margoluis, 2004; Bruyere, 2015).

The adaptive leadership style acknowledges complexity as an inherent part of problem-solving processes. Besides, adaptive leadership is one of the few approaches that leverages cognitive biases and social influences to implement management strategies. By considering the biological perspective of human development and evolution, adaptive leadership uses a combination of internal cues and pressure from the external environments to initiate change (Northouse, 2018). Behavioral and social science has proven invaluable in tackling complex challenges and measuring program success in other sectors such as healthcare (Corazzini et al., 2014; Livingood et al., 2011).

Altogether, several elements notably the complexity of the system, a continually changing world, the unpredictability of the change, the competition for natural resources, the need for immediate action, adaptation and learning, warranted an adaptive management approach in conservation (Salafsky and Margoluis, 2004). In practice, Salafsky & Margoluis (2004) devised an adaptive management framework from the broader literature on adaptive management to inform the need for Integrated Conservation and Development Projects (ICDPs).

Their framework was designed to assess the benefits of environmental projects wherein adaptive management was defined as the incorporation of research into action by continuously integrating design, management, and monitoring into the systematic test assumptions required for adaptation and learning. Their research advocated adaptive leadership as an approach to find answers to fundamental questions on the strategies, tools, goals, and conditions of ICDPs (Salafsky and Margoluis, 2004).
Another study Manolis et al. (2009), supported the model of adaptive leadership as being relevant to the challenges of being an effectual environmental practitioner. Their paper described eight adaptive principles: recognition of the social dimensions of the problem; frequent cycle through action and reflection; getting and maintaining the attention of critical stakeholders; combining the strength of multiple leaders through a network of practitioners; extend influence through by weaving networks of professional relationships; timing effort strategically; nurturing productive conflict; cultivate diversity (Table 3).

Furthermore, these principles were prescribed as a form of leadership, even for practitioners without formal authority and power. Adaptive leadership was the only framework that had extensive research and applications in the sector, thus making a compelling case for examining the extent to which environmental practitioners adhered to an adaptive leadership style.

Table 3. The eight principles of adaptive leadership and their definitions. Adapted from Manolis & al., (2009)

<table>
<thead>
<tr>
<th>Principles</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Recognize the social</td>
<td>Understanding the social dimensions of environmental issues would allow</td>
</tr>
<tr>
<td>dimensions of the</td>
<td>leaders to facilitate the emergence of new values as a collective effort</td>
</tr>
<tr>
<td>problem.</td>
<td>from all parties.</td>
</tr>
<tr>
<td>2. Cycle frequently through</td>
<td>The cyclical process of reflection upon proposed actions to identify blind</td>
</tr>
<tr>
<td>action and reflection.</td>
<td>spots, allowing adjustments and learning.</td>
</tr>
<tr>
<td>3. Get and maintain</td>
<td>Ensure that the attention of key stakeholders is maintained on difficult</td>
</tr>
<tr>
<td>attention.</td>
<td>and crucial topics and that this attention is synonymous with change.</td>
</tr>
</tbody>
</table>
4. Combine the strengths of multiple leaders. Use the power of collective leadership to create change by combining potent leadership attributes of multiple practitioners.

5. Extend influence through a network of relationships. Encourage partnerships and compromises between conflicting and opposing parties.

6. Time efforts strategically. Identify and selecting window timeframes to propose and implement changes to yield the best results.

7. Nurture productive conflict. Understanding the importance of conflict in the emergence of new values and solutions to issues. The leader has a role in maintaining conflict at a productive and amicable level. Understanding the critical importance of promoting diversity, equity, and inclusion in the decision-making process and project planning.

8. Cultivate diversity.

### 2. Purpose of the Study

Adaptive management has been described as an essential leadership strategy in the era of scientific uncertainty (Bruyere, 2015), and there has been a need for the emergence of strong leadership at all the echelons of an organization. Therefore, this study aimed to understand how environmental practitioners conceptualized their leadership style with their regards to their position of power using an adaptive leadership lens.

The research questions included:

1. Is there a relationship between professional experiences and adaptive leadership behaviors?
2. Is there a relationship between academic experiences and adaptive leadership behaviors?

3. Is there a relationship with the level of management and the tendency to exhibit adaptive leadership behaviors?

4. Is there a relationship between participation in leadership training and propensity to adhere to adaptive leadership behaviors?

5. What leadership skills do environmental practitioners’ value?

6. What experiences allow environmental practitioners to develop the skills they deem essential?

The objectives were as followed:

- To collect data on the demographics of environmental practitioners involved in the study.
- To gather data on leadership skills relevant to environmental practitioners for effective management.
- To collect data on the supply of leadership training programs within the sector.

3. Methods

3.1 Participants

A mixed-methods approach using quantitative and qualitative tools was used to collect data for this study. The term “environmental practitioners” was used as an umbrella term for individuals working in the environmental sector toward the protection and preservation of the environment and wildlife. The subjects involved in this study were environmental practitioners that were shaping environmental science through research and/or were working on the integration of environmental science into policy, management, or society at large irrespective of their formal position or power status (Manolis et al., 2009). Need to describe how subjects were identified.


3.2 Research Ethics

All participants were given an informed consent document before collecting data. The document gave them information on the scope and the intent of the study. Participation in the study was voluntary and anonymous for the online questionnaires. Several measures were taken to ensure the protection of the identity of respondents and to keep the responses anonymous. Data collected could only be accessed by the primary investigator who had access to the participant’s identity, and the results were presented collectively to avoid identifying individuals and organizations. All recorded interviews were stored on Onedrive with the access restricted by a password known only to the principal investigator. The study was carried out under the approval of the Institutional Review Board of University at Albany.

3.3 Online Questionnaire

The questionnaire (See Appendix A) was adapted from Psychometric Analyses of the Management Skills Assessment Instrument questionnaire (Cameron and Quinn, 2011) and the adaptive leadership questionnaire (Northouse, 2018). The former collected information on the demographics and organizational performance of the subject, and the latter was an evaluation of the subject propensity to exhibit an adaptive leadership style. Each participant was given 30 statements regarding their leadership and was asked to express their level of agreement on a scale of 1 to 5 with the lowest being “Strongly disagree” and the highest being “Strongly agree.”

The questionnaire assessed different dimensions of adaptive leadership based from Northouse, (2018) adaptive leadership scoring system. Based on table 2 above, scoring system is broken down into six behaviors: Get on the balcony, Identify adaptive challenges, Regulate distress, Maintain discipline attention, Give the work back to the people, Protect leadership voices from below.
Before launching the survey, program administrators of environmental leadership training programs based in the U.S were interviewed (see acknowledgment) on their programs. The interviews facilitated the design of the survey and helped establish a network for the distribution of the questionnaires. Questions were asked about the program purpose, target audience, evaluation structure and challenges of environmental leadership strategies and training.

Furthermore, the questionnaire was created on the online software platform SurveyMonkey (Appendix A). After piloting the survey with four people, some modifications were made to the questionnaire before being distributed via social media platforms (Twitter, Facebook, and LinkedIn) and email. The primary investigator encouraged practitioners that received the survey to forward it to at least two other environmental practitioners even if they could not complete the survey. The target for the online questionnaire was 250 respondents.

4. Data Analysis

4.1 Quantitative Analysis

Following the adaptive leadership theoretical framework, an adaptive leadership score was generated for each participant that demonstrated the propensity to exhibit each adaptive leadership behavior (Table 2). An overall score was generated, representing the tendency of practitioners to exhibit the combined adaptive leadership behaviors.

The scoring system was modified from (Northouse, 2018) adaptive leadership questionnaire scoring interpretation (Table 4). The score range between a minimum score of 0 and a maximum score of 150. One-way ANOVA tests were used to calculate group differences for the adaptive leadership score, with the independent variable being the respondent demographics and characteristics. A two-way ANOVA test using Tukey methods was used to
create confidence intervals for all pairwise differences within each category of independent variables. All statistical analyses were performed using the statistical software R.

Table 4. Score interpretation and range describing participant inclination to exhibit adaptive leadership behavior. Modified from Northouse (2018).

<table>
<thead>
<tr>
<th>Score interpretation</th>
<th>Score range</th>
</tr>
</thead>
<tbody>
<tr>
<td>High range: Strongly inclined to exhibit adaptive leadership behavior.</td>
<td>126 - 150</td>
</tr>
<tr>
<td>Moderate high range: Moderately exhibit adaptive leadership behavior.</td>
<td>96 - 125</td>
</tr>
<tr>
<td>Moderate low range: At times, exhibit adaptive leadership behavior.</td>
<td>66 - 95</td>
</tr>
<tr>
<td>Low range: Seldom inclined to exhibit adaptive leadership behavior.</td>
<td>30 - 65</td>
</tr>
<tr>
<td>Very low range: Never exhibit adaptive leadership behavior.</td>
<td>&lt; 30</td>
</tr>
</tbody>
</table>

4.2 Qualitative Analysis

The domains of CliftonStrengths (Rath, Conchie, and Press, 2008) was used for coding the open-ended questions investigating the leadership skills of environmental practitioners. The four domains were Executing, Influencing, Relationship-building, and Strategic thinking (Table 5) An inductive coding method was used to analyze data on leadership experiences and the needs of environmental management. This method was selected because of the absence of pre-existing categories of skills from previous research.

Table 5. The domains of CliftonStrengths with definitions and examples. Adapted from Rath, Conchie and Press, (2008)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Definition &amp; examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executing</td>
<td>Skills required to accomplish goals and to complete tasks. Help turn ideas into reality.</td>
</tr>
<tr>
<td></td>
<td>E.g., Focus, discipline</td>
</tr>
</tbody>
</table>
Influencing Skills that facilitate communication within and outside the team. Help take charge, speak up, and ensures all voices are heard. Help reach a broader audience and convince people to rally to a cause.
E.g., Communication, self-assurance

Relationship-building Skills that help empower individuals to use their distinctive talents. Help bring individuals together and make the team more significant than the sum of its parts.
E.g., Empathy, Positivity

Strategic thinking Skills that help absorb and analyze information that informs better decisions. Promotes more creativity and innovation. Push teams and organizations to a higher level of thinking.
E.g., Analytical, futuristic

5. Results & Discussion

5.1 Profile of Environmental Practitioners

Through the online questionnaire, data were collected from 171 practitioners working in 42 countries. As shown in Table 6, participants involved in this study were from a wide array of sectors, organization types, and sizes. There was a relatively equal distribution between the percentage of male (44.4%) and female (53.2%) respondents with a much smaller representation of gender non-conforming (2.3%) demographics.
The 171 practitioners that responded to the survey were based in 42 countries (Figure 1 & Figure 2) with the highest number of respondents working in the United States (36%), Mauritius (12%), Seychelles (8%), United Kingdom (8%) with the remaining countries representing less than 3% each.

Figure 1. Geographical distribution showing the 42 countries where the 171 respondents worked in A) The Americas, B) Africa
In terms of age distribution, respondents were for the majority between 25 and 34 years old (39.7%). Participants above 65 years old represented less than 3% of the respondents. The respondents were predominantly white (59%) with other races representing less than 13% each. Since the early 1990s, an apparent lack of diversity in the environmental sector has been a serious concern, which led to the promotion of diversity, equity, and inclusion ideologies became a priority in many organizations (Taylor, 2007).

The diversity, equity, and inclusion movement led to the creation of policies, fellowships, and programs to foster diversity in the sector. Despite that, the efforts and measures have been
insufficient to promote diversity to the level it ought to be. If environmental protection should happen, it should not be promoted against the interests and wishes of local people and communities (Ghimire and Pimbert, 2013), hence strengthening the need for local ambassadors within environmental initiatives.

Besides, the data showed a lack of diversity, not only at the top tier of organizations but also throughout organizations. Only 4 to 12% of each marginalized racial group were in positions of formal authority versus 69.5% white in equivalent positions. Marginalized racial groups accounted for 2 to 20% of entry-level positions comparative to 50% for the white race. These low numbers reflect the concern that marginalized communities may not be given a fair representation at the decision-making table which hinders their ability to rise in position of power. This challenge can be more pronounced in developing countries where environmental management has been regulated by the top elite institutions (Holmes, 2010; Adams and Hulme, 2001).

Environmental practitioners have been almost exclusively using a top-down approach (Brechin and West, 1990), but natural resources should be intrinsically linked to the needs of the community they served. If practitioners ignored or were unaware of these needs, then environmental management would fail to adopt a democratic management strategy. Limited diversity has equated to limited ability to uncover the social dimensions of environmental issues, which led to tunnel vision during project implementation.

As discussed in the following sections, leadership and mentoring were missing from practitioners’ professional development, notably in the early stages of their careers. Institutional barriers existed to access training opportunities, with organizations that dismissed its responsibility to foster human growth within the sector.
Table 6. Demographics of the 171 participants that responded to the online questionnaire.

<table>
<thead>
<tr>
<th>Demographics (N = 171)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td>18-24</td>
</tr>
<tr>
<td>25-34</td>
</tr>
<tr>
<td>35-44</td>
</tr>
<tr>
<td>45-54</td>
</tr>
<tr>
<td>55-64</td>
</tr>
<tr>
<td>65+</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Gender variant or non-conforming</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Race</strong></td>
</tr>
<tr>
<td>Asian</td>
</tr>
<tr>
<td>Black</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Mixed-race</td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Native American</td>
</tr>
<tr>
<td>Persian</td>
</tr>
<tr>
<td><strong>Size of organization</strong></td>
</tr>
<tr>
<td>1 - 10</td>
</tr>
</tbody>
</table>
As shown in Table 7 below, 79.6% of environmental practitioners had a “Moderately high” propensity at exhibiting adaptive leadership behaviors. They were followed by 18.2% that had a “Moderately low” tendency at exhibiting adaptive leadership practices. Less than 0.7% of practitioners had a “High”, “Low”, or “Very low” overall adaptive leadership score.

Consequently, the study highlighted that most practitioners viewed their leadership practices with a moderately high adaptive leadership lens (Figure 3).

Table 7. Summary of adaptive leadership scores of the 171 practitioners with the overall adaptive leadership score and score for each adaptive leadership behavior. The score ranged from the lowest being zero to the maximum score being 150 (Refer to Table 4)
Considering the complexity of environmental challenges, it was a positive result that supported the concept of adaptive leadership management in the environmental sector. The main limitation of this scoring system was that it only offered a subjective viewpoint of an individual's leadership. A 360 degrees assessment of individual leadership with feedback from colleagues and respondents could have minimized the participant bias but would have been beyond the scope and budget of this paper. However, participant bias was minimized by collecting qualitative data through open-ended questions that allowed practitioners to express their viewpoints without any prompts.

![Figure 3. Density plot showing the distribution of the overall adaptive score of the 171 environmental practitioners. The score was ranging from the lowest score 0 to the highest score 150.](image)

The qualitative results offered a glimpse into the leadership trend and mindset of environmental practitioners. Adherence to adaptive leadership behaviors offered the flexibility and orientation toward change needed for more successful program implementation (Khan, 2017), and understanding practitioners’ notions of leadership could help identify gaps in adaptive leadership practices. These gaps would be seen in the strategies and behaviors of practitioners when they would attempt to foster or create an adaptive workflow (Corazzini et al., 2014).
When examining the adaptive behavior “Get on the balcony,” respondents exhibited a “High” (39.4%) to “Moderately high” (51.1%) tendency of exhibiting this behavior, with less than 10% exhibiting a “Moderately low” (8.76%) to “Very low” (0.7%) tendency. This behavior described the ability of practitioners to visualize complex and interrelated problems. Environmental practitioners were thus competent at stepping away from conflict to investigate the social dimensions of environmental issues (Northouse, 2018; Manolis et al., 2009).

For the “Identify adaptive challenges” behavior, only 0.7% of respondents had a “High” propensity to recognize adaptive challenges, which signified that practitioners were willing to step back to examine challenging situations but regularly failed to diagnose the nature of the problem. The rest of the practitioners were spread out between the “Moderately high” (48.2%) to “Moderately low” (43.8%) range of adherence. Challenges could either be technical or adaptive (Uhl-Bien, Marion and McKelvey, 2007; Lichtenstein et al., 2006). Technical challenges should be tackled by using specific expertise and technical resources such as policies and protocol by practitioners versus adaptive challenges that had no obvious solutions hence requiring a cultural shift in norms and beliefs (Corazzini et al., 2014).

For that reason, practitioners would beneficiate from training in the identification and recognition of patterns of adaptive challenges, as well as the gaps between the values being advocated and the actions being supported. There has been a reluctance in talking about the “elephant in the room” and trialing new work methods (Northouse, 2018), but it has remained essentials to tackle adaptive challenges effectively. Leaders have been conflict-averse but nurturing productive conflict has been a vital part of progress and the creation of positive impact (Manolis et al., 2009).
The behavior “Regulate distress” offered a positive trend, with 98.9% falling into the “High” to the “Moderately high” propensity of exhibiting this behavior. When tackling complex environmental challenges, inflexibility to change has been conducive to stressful situations. Efficient leaders should help others manage their stress while maintaining productivity. Environmental practitioners that exhibited this behavior would successfully create a safe environment with clear directions the would be accompanied by protection, orientation, and conflict management guidelines to followers (Northouse, 2018; Winnicott, 2018; Modell, 1976; Heifetz and Linsky, 2002; Winnicott, 1965). This form of management would create flexibility within an organization to deal with times of uncertainty.

The next behavior, “Maintain discipline attention,” represented the behavior involved in motivating others to tackle tough work. Practitioners had a “High” (22.6%) to “Moderately high” (59.9%) propensity at exhibiting this behavior. Despite the breakdown in environmental leadership, practitioners were conscious of what work was required to tackle the most challenging and pressing issues first. Nevertheless, problem avoidance was common where there was a lack of a multidisciplinary management approach (Newing, 2010; Fox et al., 2006; Cook et al., 2013). Consequently, successful solutions have been rarely implemented across many scientific disciplines because environmental practitioners have usually only been trained in very narrow fields (Middleton, 2011).

For the “Giving the work back to people” behavior, 0.8% of practitioners were strongly inclined to exhibit this behavior. 60% of practitioners exhibited a “Moderately high” adherence with the rest of the practitioners falling into the “Moderately low” (24.8%), “Low” (5.1%), and “Very low” (1.5%) score range. This attitude might have been an intrinsic value, but there has been an unfortunate reality for many practitioners: the demands of administrative activities and
practical constraints encouraged more directive management strategies. Micromanagement has been hindering the ability of the individual to empower and implement adaptive leadership values.

Even when individuals self-identified with the “Give the work back to people” behavior, they might struggle to avoid micro-management. Adaptive leadership practices will remain idealized notions if the organizational culture does not encourage practitioners to think for themselves and be confident in offering solutions to challenging situations (Alvesson and Sveningsson, 2003; Northouse, 2018).

Lastly, practitioners exhibited a strong ability to exhibit the “Protect leadership voices from below” behavior with a score range between “High” (38%) and “Moderately high” (52.6%). This result suggested that practitioners were open and accepting of unusual or radical contributions from low-status group members. As we saw with the previous behavior, being open to low-status group members was an intrinsic value that could only meaningful if practitioners would put it into action.

All the adaptive leadership behaviors listed above could be the complete set of actions that would be needed altogether for an effective leadership strategy. Adaptive leadership behaviors offered a form of leadership that made it accessible to anyone that saw the need for change because it was not focused on power dynamics. Albeit power remained a pillar of leadership attributes (French, Raven and Cartwright, 1959), it does not define adaptive leadership practices.

Unfortunately, the holistic nature of adaptive leadership could give rise to numerous barriers to its implementation. The scoring system used provided a glimpse into what adaptive behaviors practitioners were more likely to be adopted and what areas needed more training.
Additionally, the interconnections between the behaviors strengthened the importance of multidisciplinary training for practitioners. As seen in Figure 4, each adaptive behavior showed a high correlation with other adaptive behaviors with least correlation (0.23) between the adaptive behavior “Get on the balcony” and “Identify adaptive challenges. The strongest correlation was between “Get on the balcony” and “Regulate distress” with 0.53.

![Correlation Matrix](image)

*Figure 4. Correlation matrix for the six adaptive behaviors with full descriptions of the behaviors in table 2. The data presented represented the scores for each behavior and the overall score of the 171 respondents.*

Furthermore, the study highlighted the scarcity of social and behavioral science to further the understanding of the underlying factors behind adaptive leadership behaviors in the environmental sector. Environmental issues arose because of human behaviors, which meant that
understanding the social dimensions of the problem could help reshape the human-environment interactions (Fox et al., 2006; Mascia et al., 2003). In the next section, adaptive leadership scores were compared based on the professional and academic experiences of practitioners. The power influence aspect was explored by comparing the score of individuals with and without positions of power.

5.3 Professional and Academic Experiences

Adaptive leadership scores were compared based on the professional and academic experiences of practitioners. To compare the leadership approach of practitioners for their professional experience, the numbers of years of experience were used as an indicator of professional experience for environmental practitioners, and they were grouped into six ranges of experience: 0-2 years, 3-5 years, 6-10 years, 11-15 years, 16-25 years, More than 25 years (Figure 5). A one-way ANOVA between the 171 respondents was conducted to compare the role of the numbers of years of professional experience on the adaptive leadership score. There was no significant effect of numbers of year of professional experience at the p<0.05 level on the adaptive leadership score of practitioners [F (5, 131) = 1.957, p = 0.0892].

Figure 5. Box plot distribution that compared the adaptive scores (ranging from 0 to 150) between the six ranges of the number of years of experience in the environmental sector for the 171 practitioners.
The next focus was on analyzing the differences between practitioners' scores as they related to their academic experiences. The level of education was used as an indicator with six groups: High school or secondary school, Diploma, Undergraduate degree, Master’s degree, Doctorate (Figure 6). A one-way ANOVA between the 171 respondents was conducted to compare the role of the level of academic experience on the adaptive leadership score. There was not a significant effect of the level of academic experience at the p<0.05 level on the adaptive leadership score of practitioners [F (4, 132) = 1.219, p = 0.306].

For both the level of academic and professional experience, the small sample size (171 practitioners) was a limiting factor in unveiling group differences. Further research would be required to compare the approach of practitioners based on their level of academic and professional experience.

On the other hand, when practitioner’s adaptive leadership score was compared based on their management role within their organization. The results showed a significant relationship between the level of management of practitioners and the propensity to adhere to adaptive leadership behaviors (Figure 7).

Individuals with a position of authority exhibited stronger inclination for adaptive leadership practices, with scores ranging from moderately high to moderately low. In comparison, individuals without any official title classified as “No formal authority” had adaptive leadership practices that ranged from very low to moderately high. A one-way ANOVA between the 171 respondents was conducted to compare the role of the level of management on
the adaptive leadership score. There was a significant effect of the level of management at the p<0.05 level on the adaptive leadership score of practitioners [F (4, 96) = 10.5, p = 4.25e-07].

A Tuckey post hoc test was computed to further investigate groups differences for the effect of the level of management on adaptive leadership score of practitioners. The Tuckey HSD results were summarized in the table 8 below. As seen in table 8, the Post hoc comparisons using the Tukey HSD test indicated that the mean adaptive leadership score for individuals with a managerial role was significantly different than individuals without formal authority.

For example, when comparing individuals without formal authority to program coordinators, there was a significant difference with a p-value = 0.0000037 which showed that individuals without formal authority had a significantly different approach at adaptive leadership behaviors.

Figure 6. Box plot distribution that compared the adaptive scores (ranging from 0 to 150) between five level of academic experiences in the environmental sector for the 171 practitioners.
Table 8. Summary of Tukey Post Hoc test showing pairwise comparison for the five levels of management (No formal authority, program coordinator, program manager, program director & executive director) following one-way ANOVA* comparison. The sample size for this analysis was 171 practitioners.

<table>
<thead>
<tr>
<th>(I) Management Level</th>
<th>(J) Management Level</th>
<th>Mean Difference (I – J)</th>
<th>P-Value</th>
<th>Lower Boundary</th>
<th>Upper Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal authority</td>
<td>Program Coordinator</td>
<td>45.264368</td>
<td>0.0000037</td>
<td>22.203722</td>
<td>68.325014</td>
</tr>
<tr>
<td>No formal authority</td>
<td>Program Manager</td>
<td>50.144144</td>
<td>0.0000002</td>
<td>27.318418</td>
<td>72.969871</td>
</tr>
<tr>
<td>No formal authority</td>
<td>Program Director</td>
<td>52.701754</td>
<td>0.0000001</td>
<td>29.079028</td>
<td>76.324481</td>
</tr>
<tr>
<td>No formal authority</td>
<td>Executive Director</td>
<td>-51.256410</td>
<td>0.0000007</td>
<td>-75.611167</td>
<td>-26.901654</td>
</tr>
<tr>
<td>Program Coordinator</td>
<td>Program Manager</td>
<td>4.879776</td>
<td>0.6044369</td>
<td>-4.550582</td>
<td>14.310135</td>
</tr>
<tr>
<td>Program Coordinator</td>
<td>Program Director</td>
<td>7.437387</td>
<td>0.3555913</td>
<td>-3.785406</td>
<td>18.660179</td>
</tr>
<tr>
<td>Program Coordinator</td>
<td>Executive Director</td>
<td>-5.992042</td>
<td>0.6840415</td>
<td>-18.683458</td>
<td>6.699373</td>
</tr>
<tr>
<td>Program Manager</td>
<td>Program Director</td>
<td>-2.557610</td>
<td>0.9638392</td>
<td>-13.289407</td>
<td>8.174187</td>
</tr>
<tr>
<td>Program Manager</td>
<td>Executive Director</td>
<td>-1.112266</td>
<td>0.9990920</td>
<td>-13.371648</td>
<td>11.147116</td>
</tr>
<tr>
<td>Program Director</td>
<td>Executive Director</td>
<td>1.445344</td>
<td>0.9983513</td>
<td>-12.240847</td>
<td>15.131536</td>
</tr>
</tbody>
</table>

*One-way ANOVA: F (4, 96) = 10.5, p = 4.25e-07 at p<0.05 level for 171 practitioners

This result suggested that practitioners without formal authority had a significantly different approach to their leadership and were less likely to adopt adaptive leadership behaviors.

It was arguable whether individuals without official title escaped their responsibility to act
(Manolis *et al.*, 2009) or whether they were not equipped with appropriate skills to adhere to the adaptive behaviors.

![Box plot distribution that compared the adaptive scores (ranging from 0 to 150) between the organizational position of the 171 practitioners involved in the study.](image)

For effective adaptive leadership practices, leadership capacity should be distributed to all levels of management (Hayashi and Soo, 2012), with practitioners being offered the training and organizational structure to put adaptive principles into practice. Practitioners should be given a structure that would encourage proactive planning and action when they would see the need for change. In times of crisis, hierarchical leadership proved to be a failure (Hayashi and Soo, 2012) as it made it impossible to delegate tasks when individuals expected a command and control dynamics to navigate rough terrain.

This study demonstrated the need for adaptive leadership training for early-career practitioners to align values and practices within organizations. This need was equated by the demand of early-career practitioners for leadership training. Further investigation would be
required to understand the underlying difference between leadership values for practitioners with and without leadership training.

5.4 Leadership Training

A comparison of practitioners that had attended leadership training versus practitioners that had no leadership training did not show any significant statistical difference between the two groups' propensity at adhering to adaptive leadership practices. This analysis hardly meant that leadership training impact should be undermined, but it prompted a reflection on the leadership training being offered to practitioners.

The main limitation of this analysis was the difference in sample size between the two groups, with only 37% of practitioners that received leadership training. In chapter 3, an in-depth impact evaluation of leadership training was carried out to explore the leadership training experiences of practitioners further.

![Figure 8. Box plot distribution that compared the adaptive scores (ranging from 0 to 150) between practitioners that attended leadership training and practitioners that did not attend leadership training.](image)
5.5 Effective Leadership Skills

Qualitative analysis revealed that relationship-building (48.3%) skills were essential skills for practitioners’ toolkit. Next on the list were strategic thinking (20.7%), influencing (12.9%), executing (15.1%) and then technical skills (3.1%) (Table 8.) Technical skills represented only 3.1% of the skills selected by practitioners. The skills that were deemed essential were not the skills targeted in academic and professional development.

The results highlighted a disconnect between the demand and supply of professional and academic training. Training offered to practitioners was not responding to the needs of practitioners and failing to develop the multidisciplinary skills needed to solve environmental problems in a non-academic setting (Muir and Schwartz, 2009). Furthermore, practitioners were asked what experiences allowed them to develop skills essential to them.

Predominantly practitioners develop essential leadership skills through “work experience” (33.3%) and “training” (26.5%). When practitioners mentioned training, it was often uncleared whether it was about academic or professional training, so it was combined into one category.

Table 9. Five categories of skills essential to practitioners with exemplary quotes.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Percentage (%)</th>
<th>Exemplary quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship-building</td>
<td>48.3</td>
<td>“Interpersonal skill”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Diplomacy”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Compassion and wisdom”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Relatability”, “listening”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Giving people opportunities to learn, develop &amp; Succeed”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Ability to listen to all sides of the argument”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Empathy toward staff and their day to day struggles”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Be open-minded and fair”</td>
</tr>
<tr>
<td>Category</td>
<td>Percent</td>
<td>Abilities</td>
</tr>
<tr>
<td>---------------</td>
<td>---------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Strategic thinking | 20.7    | “Critical thinking”  
“Imagination”  
“Visionary”  
“Bounce ideas off of each other”  
“Ability to see the big picture”  
“Being a source of new ideas and concepts”  
“Ability to develop a shared vision in collaboration with others.”  
“Ability to differentiate repeating problems (or successes) from one-off problem (or successes) and dealing with each differently.” |
| Influencing    | 12.9    | “Facilitation”  
“Communication”  
“Clear sense of purpose committed clearly to the team”  
“Ability to state the unsaid”  
“Empowering team under an aligned goal”  
“Understand what motivates people”  
“Being able to project vision/goals onto others and do so with motivation”  
“Strong character” |
| Executing      | 15.1    | “Decision-making”  
“Ability to follow-through”  
“Time management”  
“Focus on the task”  
“Continues to be a market leader”  
“Consistency”  
“Ability to identify relevant measures of performance”  
“Ability to delegate duties” |
| Technical      | 3.1     | “Data management”, |
12.9% of the experiences described were from “learning from examples of poor or good leadership”. In this case, there was usually a power dynamic at play with individuals in a position of power that acted as examples to followers.

The third cited experience was “mentorship” (10.6%), which was strongly correlated to leading by example. A healthy culture of mentorship should be created for individuals to develop the leadership skills necessary to become agents of change. Mentoring would be a useful tool in improving the retention of individuals from fields where historical underrepresentation has occurred (Girves, Zepeda and Gwathmey, 2005).

The need for mentoring has been even more crucial for women and minorities who have to struggle to find mentors that they could relate to and eventually felt isolated within their sector (Davidson and Foster-Johnson, 2001; Johnsrud, 1994). Mentoring could be the first step to shaping and raising expectations about the role of women and minorities as environmental leaders, and it would contribute to the preparation of the job market and academia to more diverse leadership.
“Many years working on remote islands in small teams with examples of good mentorship and bad mentorship. I was lucky to learn from some incredible female leaders.” Respondent 63

The last two experiences described were “Education” (8.3%) and “Networking” (8.3%). Networking could be a powerful tool if practitioners tapped into theses network to create more holistic programs. Additionally, a strong network would promote the concept of collective leadership, whereby individuals would become agents of change by combining the strengths of individuals from diverse backgrounds. There would be no use in having an extensive network if it was never truly utilized, and meaningful connections were never explored. Ergo, networks should be weaved into healthy and productive relationships, which meant an investment of time and dedication.

In terms of educational opportunities, there has been an evident gap in the academic training and practical application of practitioners for quite some time now (Cook et al., 2013; Mascia et al., 2003; Newing, 2010; Muir and Schwartz, 2009). There has been little progress in having a multi-disciplinary approach to the training of environmental practitioners (Newing, 2010). This training gap could be an explanation for the low percentage that it represented in creating leadership skills. If practitioners spent between three to ten years in tertiary education, it would be more effective if this experience had a more significant return on improving leadership skills.

“Critical thinking training in high school...” Respondent 105
5.6 Environmental Leadership Strategies

In order to get a clearer picture of environmental leadership strategies, practitioners were asked what was missing from the sector to create effective management strategies. Categories were created through coding, and the data were presented in Table 10 below. This information offered sharp insights into the areas that needed improvement in the sector and could be used to create training opportunities for practitioners. Among the top three categories of elements missing, leadership and management training (18%) came first, followed by diversity, equity and inclusion (15%), and conflict resolution skills (11%).

The lack of leadership training, diversity, and conflict management were the most significant barriers to environmental management from the practitioner’s perspective. Funding was a barrier but representing only 10% of the respondent’s answers. This feedback suggested a need for reevaluation in terms of resource allocations in a way that would create a shift toward inclusive leadership and management strategies.

Table 10. Elements that were missing for effective management strategies in the environmental sector, according to the 171 practitioners involved in this study.

<table>
<thead>
<tr>
<th>Categories of missing elements</th>
<th>Percentage (%)</th>
<th>Exemplary quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership and management training</td>
<td>18.0</td>
<td>“Not enough focus on developing leadership and relying only on technical/scientific skills”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“leadership training that targets conservation issues and goals.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Strong understanding of effective management and lack of awareness of tools available”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Local conservation leaders boot camp”</td>
</tr>
<tr>
<td>Diversity, equity &amp; inclusion (D.E.I.)</td>
<td>14.8</td>
<td>“J.E.D.I. - this is changing, but at least in the U.S., many top organizations lack DEI, or the staff”</td>
</tr>
</tbody>
</table>
“Diverse thinking and understanding.”

“I think generally there should be a greater focus on community involvement and making programs sustainable by greater community investment. So instead of bringing people in from the outside a focus should be on community-lead projects or bringing people in, to train community members with the hopes that they will take over the project for the long-term.”

“ability to bring in people with differing opinions as a stakeholder not an enemy.”

<table>
<thead>
<tr>
<th>Skill</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict resolution skills</td>
<td>11.5</td>
<td>“The ability to handle conflict seems to be missing.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Conflict resolution training”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Understanding of the values of various segments of the public and how to resolve perceived conflicts across those segments.”</td>
</tr>
<tr>
<td>Finance</td>
<td>9.8</td>
<td>“Money”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Funding and opportunity for small NGOs.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Funding and wider acceptance by society that money is not the same as value.”</td>
</tr>
<tr>
<td>Strategic Planning</td>
<td>9.8</td>
<td>“Good planning skills”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Find them, nurtured them and guide them.”</td>
</tr>
<tr>
<td>Mentorship</td>
<td>6.6</td>
<td>“Strong leaders in the industry that can act as mentors (I feel our industry lacks strong leaders)”</td>
</tr>
<tr>
<td>Skill</td>
<td>Score</td>
<td>Comments</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------</td>
<td>----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Collaborative leadership</td>
<td>6.6</td>
<td>“Support and mentorship prior to and within leadership roles”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“more cross-sector opportunities - build relationships with social service sectors”</td>
</tr>
<tr>
<td>Effective scientific communication</td>
<td>6.6</td>
<td>“Not missing but rather having a little less of it: ego and ego-fueled ambition. It stands in the way of effective collaboration between organizations and results in delusional decision making.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Means to communicate with and engage younger audiences.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Emotional intelligence skills, ability to share knowledge and science to a general populace without an understanding of complex topics.”</td>
</tr>
<tr>
<td>Financial management</td>
<td>3.3</td>
<td>“how to be creative with funding projects”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Budgeting training”</td>
</tr>
<tr>
<td>Scientific expertise</td>
<td>3.3</td>
<td>“use of experts who have developed materials and written extensively of the topic”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“The realization/understanding that success, especially in conservation, is highly dependent on people as the main resource and should, therefore, be one's priority. That their job is to manage this elusive endangered species known as the dedicated field worker.”</td>
</tr>
<tr>
<td>Willingness to change</td>
<td>3.3</td>
<td>“Proper capacity building training programs.”</td>
</tr>
<tr>
<td>Staff capacity and capacity building</td>
<td>3.3</td>
<td>“Time management training”</td>
</tr>
<tr>
<td>Time management skills</td>
<td>1.6</td>
<td>“having open minds to new ideas, being able to connect seemingly unconnectable ideas. We need to be fresh and constantly open to innovation and understand how to measure meaningful progress”</td>
</tr>
</tbody>
</table>
6. The Implications for Organizational Policy and Practice

There were numerous barriers to effective environmental leadership that were identified in this study, but there was also room for improvement in policies and practices in academia and the workplace. Therefore, to help tackle these barriers, this study offered some recommendations to practitioners and organizations:

- Circulate job opportunities and training opportunities within and outside organizations.
- Encourage employees to assist in the hiring process by sharing within their network.
- Reach out to communities and scout for talented individuals, especially within marginalized groups and communities.
- Describe opportunity through expected deliverables rather than qualifications when posting jobs or training advertising.
- Offer training in implicit bias to the hiring team and human resource team.
- Use monitoring and evaluation framework to explore the needs of the community where environmental projects are implemented.
- Create policies that allow employees to learn what is going on at every level of the organization, so they can understand how their actions influence others.
- Create an organizational culture where people feel free to inquire about each other’s (and their own) assumptions and biases.
- Offer mentorship and guidance, especially to minority groups and women.
- Create conflict agreement protocols and make it an integrant part of the organization’s policies.
- Create policies that enforce transparency in terms of salary and benefits within organizations.
7. Conclusion

Diversity, equity, and inclusion of races, genders, ethnicities, and cultures have been increasingly accepted as a pillar for effective environmental leadership as it brought to the table a plethora of values and viewpoints (Tallis and Lubchenco, 2014; Matulis and Moyer, 2017). Nonetheless, it has been a far cry between the advocacy of diversity and its practical applications. This study provided a relatively equal male to female ratio of respondents with a minimal representation from other gender demographics. Other studies examining the gender characteristics of environmental projects showed that the percentage of females had increased substantially in the last three decades (Taylor, 2015). However, this percentage should not be taken for granted, as there have been several gender-related challenges in the environmental sector, such as harassment and lack of supportive relationships (Jones and Solomon, 2019).

The environmental sector has reached a critical stage where it has been failing to lead the culture evolution needed to reverse the anthropogenic destruction of our planet (Ehrlich, 2002). It was no longer enough to promote diversity without making any commitment to practical applications with dedicated resources and funding. The environmental sector was meant to be an altruistic field that protected nature for its intrinsic values, but it failed to include humans as an integral part of the natural environment.

Organizations have been based in communities without making it a priority to make its work a more inclusive, empowering, and appealing profession to members of the community. This study was based in 42 countries, and yet ethnic minorities were underrepresented not only at the top tier of organizational positions but also at entry-level positions. Therefore, there existed an improbable expectation that diversity would naturally occur if policies were put in place without supporting structures and incentives to implement the policies.
The complex, transboundary nature of environmental challenges required leaders to emerge in all countries at all levels of the organizations, regardless of the level of authority held. Individuals should be empowered to act when there was a need for change (Manolis et al., 2009). Adaptive leadership offered the ideal framework to promote this form of leadership. This study demonstrated that there was a relatively high propensity at exhibiting this leadership style among practitioners.

In this study, the adaptive leadership theory was used to qualitatively and quantitatively assess the leadership behaviors of practitioners. This analysis revealed that practitioners had difficulties in differentiating between technical and adaptive challenges, with the former requiring practical solutions and the latter requiring alteration in intrinsic beliefs. Additionally, practitioners struggled to empower individuals to act and think independently. This challenge could happen even where there were strong leadership ideologies, but numerous administrative and bureaucratic constraints.

If humans have been the cause of environmental degradation, human interaction skills would be required to tackle this problem. Furthermore, the data showed that the four emergent categories of skills that were valuable to practitioners were soft skills rather than technical skills. For progress in the sector, human interaction processes should be healthy, much in the same sense that the ecological processes could only be healthy in an effectively functioning system (Norton, Faber and Rapport, 1992).

Therefore, a significant investment should be made into the experiences that would allow practitioners to develop the soft skills needed to work in communities. The study highlighted that leadership and management training was the most common form of experience related to the development of practical leadership skills. Nonetheless, serious consideration should be given to
the content of training offered to practitioners, particularly at the early stages of their career development. Leadership training could be the necessary step to align leadership values and practices between individuals with power and individuals without power.

Overall, this research suggested the vital need to recognize adaptive challenges in all aspects of environmental programs. Further investigation would be required to understand the relationship between adaptive leadership training and the development of human-related skills. Adaptive leadership has been a successful leadership approach to addressing the complex issues of environmental projects (Haubold, 2012); this study provided preliminary support for using adaptive leadership framework for managing environmental programs and designing training programs.

8. Literature Cited


Ehrlich, P. R. (2002) 'Human natures, nature conservation, and environmental ethics: Cultural evolution is required, in both the scientific community and the public at large, to improve significantly the now inadequate response of society to the human predicament', *BioScience*, 52(1), pp. 31-43.


CHAPTER 3

Assessing the Impact of Leadership Training on the Professional Development of Environmental Practitioners

1. Introduction

Even though it has been described as an essential attribute in the toolkit of an environmental practitioner (Dietz et al., 2004), leadership has been understudied in the environmental sector. Over the years, there have been repeated calls to modify training to better suit the needs of practitioners (Muir and Schwartz, 2009) with the recommendation to broaden people skills (Cannon, Dietz and Dietz, 1996), professional development (Pérez, 2005) and to provide foundations to understand policies and societal values (Clark, 2001). All these skills have been correlated with practitioners’ ability to exhibit strong interpersonal skills (Jacobson and Robinson, 1990). However, it has been challenging to provide multidisciplinary training in academic programs because there were/are too many different kinds of practitioners. (Muir and Schwartz, 2009). Each sector has brought unique challenges and requirements, which means that practitioners are more likely to develop soft skills outside of the traditional academic setting.

Human interactions have been an integral part of environmental work, even for geographically remote work locations. Therefore, strong interpersonal skills have helped effectively communicate scientific findings to impact the behavior of other human beings (Cannon, Dietz and Dietz, 1996). Some of the leading institutions and organizations have recognized the need to have a framework for leadership development. There has been an increase in the demand for leadership development programs, but the supply is still insufficient (Manolis et al., 2009).
In a study by Dietz et al. (2004), interdisciplinary training was described as the most critical step in the career development of environmental practitioners. Mentorship and networking were also deemed essential to the development of leadership skills. Nonetheless, it became apparent that research on leadership and interdisciplinary training in the environmental sector was not readily available, particularly when compared to the business world, where a vast amount of leadership training research has been generated to improve organizational performance. If the environmental sector wanted to shift toward business-inspired models in order to improve the efficacy of environmental programs (Black and Groombridge, 2010), it would need to dedicate more resources to leadership training and research.

Investment in environmental leadership research would allow leadership training programs to be tailored to the needs of environmental practitioners instead of borrowing from the business world. Moreover, leadership training must be made accessible, and organizations must put in an intentional effort to facilitate an employee’s exposure to elements of leadership formation at the early stages of their careers (Morrall and Ovbije, 2014).

Accessible leadership training could create the opportunity for diversity and equity promotion in a sector that has often been hyper-focused on the preservation of wilderness at the detriment of local community involvement. Effective leadership tools should be extended to underrepresented groups to empower them to shape a field where they have been historically excluded (Foster et al., 2011). These underrepresented groups and individuals have faced a historical combination of educational, social, and financial barriers when attempting to emerge as environmental practitioners. Those barriers have created impediments to improving the capacity of the environmental workforce (Aikenhead, 1997; Nettles and Millett, 1999; Burdman, 2005).
Therefore, identifying these barriers would be the initial step toward accessible training opportunity. Accessibility would be the initial hurdle for practitioners beyond which they would need to receive adequate leadership training. Consequently, the leadership training impact should not be taken for granted and must be evaluated using the relevant framework (Sogunro, 1997). My study was an attempt at understanding the current status of leadership training demand and supply while providing an extensive evaluation of existing leadership training programs.

1.1 Environmental Leadership Training Program.

In response to the need for more environmental leadership training programs, some institutions have been striving to offer environmental leadership programs to practitioners. Some examples are the Environmental Leadership Program, Emerging Wildlife Conservation Leadership, Land Trust Alliance Leadership Program, New Jersey Leadership Program, Institute for Conservation Leadership, and National Wildlife Federation. A list of the currently available environmental leadership programs can be found in Appendix B.

Although varying in terms of duration, target audience, and mission statements, the leadership programs above overlapped in their desire to empower environmental practitioners. Through discussion, networking, and coaching, practitioners were being offered an opportunity to expand their scope of work and reflect on their leadership strengths and weaknesses. The programs also offered the opportunity for the interdisciplinary training, lacking in most graduate programs (Muir and Schwartz, 2009; Middleton, 2011; Newing, 2010; Fox et al., 2006; Cook et al., 2013; Cannon, Dietz and Dietz, 1996)

In order to fully grasp the vision of these leadership programs, program administrators were contacted to gain insights into the programs (see acknowledgement). This exercise was extremely beneficial to design the questionnaire, to identify key themes for the literature search
and to select a framework for the program evaluation. The following were some quotes from this pre-market survey exercise:

“Our goal is to combine the strength of multiple leaders and extend the influence of these leaders through a network of leaders or collective leadership while promoting a balanced life for practitioners.”

“Anyone and everyone can be a leader since leadership is demonstrated through skills. Conservation leaders use these skills to plan actions that lead to goals and outcomes, which promotes a healthy community.”

“There is a need to build institutional resiliency and continuity in conservation, and the leadership training help maintain this promise of perpetuity.”

2. Purpose of this Study

The environmental sector has yet to investigate the impact of leadership training on the practitioner’s professional development. Ergo, this study was designed to investigate the role and impact of leadership training in creating effective and inclusive management strategies. The demand for and accessibility of leadership training were also evaluated. The impact of leadership training must not be taken for granted if resources should be devoted to improving leadership research (Sogunro, 1997). This research aimed to improve current leadership training programs, to encourage the creation of new leadership programs, and to investigate the demand and supply of leadership training.

Our specific research questions for this study were as follows:

1. According to environmental practitioners, how accessible were leadership training opportunities?

2. What were the experiences that practitioners had with their leadership training programs?
3. To what extent are practitioners interested in leadership training?

4. What skills do practitioners develop from leadership training?

The research objectives were the following:

- Collect data on the demographics of environmental practitioners.
- Collect feedback of practitioners on their participation in leadership training programs.

2. Methods

3.1 Participants

The participants involved in this study were environmental practitioners that were working to shape science through research or advancing the integration of science into policy, management, or society at large (Manolis et al., 2009) or a combination of both. Practitioners involved in this study were selected regardless of their position of power or authority within their organizations. Leadership was viewed as a function that could be assumed by anyone regardless of their formal authority.

3.2 Research Ethics

Participants were given an informed consent document as part of the introductory section of the online questionnaire. The informed consent document contained information on the scope and the intent of the study. Participation in the study was voluntary and anonymous. All data collected were stored on one drive with access restricted by a password that was only accessible to the principal investigator. The study was carried out under the approval of the Institutional Review Board of the University at Albany.
3.3 Online Questionnaire

Before the start of the study, I carried out interviews with program administrators of leadership training programs in the United States using the questions listed in Appendix B. The interviews helped me in designing the online questionnaires and it also created a network through which the questionnaire was later circulated. After the questionnaire was designed using the software SurveyMonkey and piloted with four people, some modifications were made before it was distributed in the primary investigators’ network. The main channels of distribution were via social media platforms (Facebook, Twitter, and LinkedIn) and email. The primary investigators encouraged participants to forward it to at least two environmental practitioners even if practitioners did not respond to questionnaire. The target for the online questionnaires was 250 respondents. Refer to appendix A for the online questionnaire.

3. Analysis of Data

Adaptive leadership has been described as the ideal model for leadership in times of uncertainty (Manolis et al., 2009; Salafsky and Margoluis, 2004; Lee, 1999). Following this recommendation, adaptive leadership was used as a theoretical framework to evaluate leadership training experiences. Statements were designed based on Manolis et al. (2009) eight adaptive principles of leadership (Table 1), and a 1 to 5 Likert scale system was used to determine the level of agreement to each statement (strongly disagree to strongly agree – write out). The Likert scale system measure people’s attitudes, opinions, or perceptions based on specific questions or statements (Likert, 1932). Hence, it offered a reflection of practitioners' satisfaction with their leadership training experiences.
Table 1. *Eight principles of adaptive leadership and their definitions. Adapted from Manolis & al., (2009)*

<table>
<thead>
<tr>
<th>Principles</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Recognize the social dimension of the problem.</td>
<td>Understanding the social dimensions of their issues allow the leader to facilitate the emergence of new values as a collective effort from all parties.</td>
</tr>
<tr>
<td>2. Cycles frequently through action and reflection.</td>
<td>A leader reflects upon his/her actions to blind spots, allowing adjustments and learning.</td>
</tr>
<tr>
<td>3. Get and maintain attention.</td>
<td>Ensuring that the attention of the essential parties is maintained on essential topics and that this attention is synonymous with change.</td>
</tr>
<tr>
<td>4. Combine the strengths of multiple leaders.</td>
<td>Uses the power of collective leadership to create change.</td>
</tr>
<tr>
<td>5. Extend influence through a network of relationships.</td>
<td>Encourage partnership and comprises between conflicting and opposing parties.</td>
</tr>
<tr>
<td>6. Time efforts strategically.</td>
<td>Choosing the most appropriate time to implement changes to yield the best results.</td>
</tr>
<tr>
<td>7. Nurture productive conflict.</td>
<td>Understanding the importance of conflict in the emergence of new values and solutions to issues. The leader has a role in maintaining productive and tolerable conflict.</td>
</tr>
</tbody>
</table>
8. Cultivate diversity. The leader understands that minority voices have a crucial role in the decision-making process.

For the qualitative analysis, a latent coding system was used for the open-ended questions investigating the leadership training experiences of environmental practitioners, which meant a subjective interpretation of the responses based on the overall responses. This method was chosen to ensure that the vast array of practitioner’s experiences was reflected in the results and discussion.

4. Results & Discussion

Through the online questionnaire, practitioners were asked about their experience as participants in leadership training. The findings were presented and discussed in two sections: accessibility to leadership training and experiences associated with leadership training. This study aimed to shed light on areas for overall improvements by evaluating the strengths and weaknesses of over 50 leadership training programs, seminars, workshops, and events (Appendix B).

6.1 Accessibility to leadership training

Out of the 171 inquired practitioners, 117 responded to the section on leadership training in the environmental sector. Out of these 117 respondents, 49% had already attended a leadership training, 8% were currently attending one, and 3% were planning to attend one soon. Practitioners that did not attend a leadership training represented 41% of the respondents, with 3.4% of the participants having no interest in ever attending one (Figure 1). Overall, there was a positive trend in the percentage of participation in leadership training, and practitioners without leadership training expressed an interest in seeking leadership training (38%).
The result suggested strong demand for leadership training with an inadequate supply, with only 46.2% of the 117 respondents aware of a leadership training program. Therefore, more than half of the practitioners were unaware of training suitable to their professional needs (Figure 2). These responses highlighted the gap in the supply of leadership training, which was further investigated by looking into the factors influencing accessibility. For 47% of the practitioners, accessing leadership was a challenge, with only 24% that perceived training as accessible, and 29% did not know if it was accessible (Figure 3).

Therefore, when practitioners considered pursuing leadership training, they were faced with barriers to access it as well as the underlying eventuality that their investment would have no return of improved applicable leadership attributes. To further explore the challenges of accessibility, practitioners were asked to comment on these challenges (Table 2). Respondents
who felt that leadership training was accessible belonged to organizations that supported their training by providing funding or the training itself.

Figure 2. The response of 117 practitioners when asked if they were aware of leadership training programs suitable to their professional needs

Figure 3. The response of 117 practitioners when asked if leadership training programs were easily accessible to them
“it is easily accessible within our agency, however, not so if we seek to go outside” Respondent 24

Table 11. Summarizes the barriers that 117 environmental practitioners faced when seeking leadership training supported with exemplary quotes from practitioners.

<table>
<thead>
<tr>
<th>Barriers to access leadership training</th>
<th>Percentage (%)</th>
<th>Exemplary quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost and lack of organizational support</td>
<td>28</td>
<td>“Costs are often thousands of dollars. The training is out there, but the price tag can be a deterrent.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Generally, not supported or supplied by my agency.”</td>
</tr>
<tr>
<td>Poorly advertised</td>
<td>26</td>
<td>“Adverts are only accessible to people with internet connections and in towns.”</td>
</tr>
<tr>
<td>Lack of online training</td>
<td>13</td>
<td>“I live on an island. In-person training would be very difficult and costly. I am not aware of any online training, though I know I could benefit.”</td>
</tr>
<tr>
<td>Only available for junior or senior level</td>
<td>13</td>
<td>“I see workshops for effective management emailed out by our HR for individuals in or soon moving toward leadership positions.”</td>
</tr>
<tr>
<td>Unrelated to environmental issue</td>
<td>8</td>
<td>“Most leadership training is provided for junior employees, but training needs to be throughout a career.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Most people do not know what is available and much of it is geared towards &quot;business&quot; principles rather than a set of tools that can help you lead in areas from collaborative research projects to small non-profits.”</td>
</tr>
</tbody>
</table>
Cost and lack of organizational support (28%) were the most significant barriers to access leadership training. Practitioners in the government or for-profit sector had more robust organizational support than their counterparts in the nonprofit world. Non-profits may face a leadership deficit (Johnson, 2009) because early-career practitioners were overworked, undervalued, and had minimal opportunities for professional growth (Linscott, 2011; Carman, Leland and Wilson, 2010). With no added benefits offered to staff, the non-profit sector has been suffering from a lack of human capacity and effective leadership because prior education and training of staff would not be sufficient for the demands of the jobs and key managerial roles (Linscott, 2011). Ergo, emerging practitioners have been struggling to access adequate leadership training mainly when working in the non-profit sector.

Another critical barrier was advertisement (26%), with leadership training offered within specific platforms or networks not accessible to individuals working or studying in remote locations worldwide. This claim was supported by individuals who also felt there was a lack of online structures (13%) for leadership training. With globalization and technological progress,
online training should be promoted to minimize time and cost resources involved in attending leadership training.

Even when training was offered in proximity or within organizations, leadership training was often offered to only individuals in positions of formal authority (13%). This focus on senior leadership denoted an apparent lack of oversight and purposeful succession planning in organizations (Linscott, 2011). Offering opportunities for emerging practitioners would ensure that individuals would be prepared for senior leadership roles when they would arise (Bell, 2011). If only practitioners in positions of power received training, organizations should create structures for these individuals to transmit this knowledge by providing a transparent leadership development structure that would include support for inclusive leadership development activities (Morrall and Ovbije, 2014).

Leadership training must be considered an integral part of professional development, which should be seamlessly blended into the organization’s training responsibilities. Organizations should underscore the importance of in-work training so that practitioners see it as an essential part of their job function. This study showed a strong inclination toward leadership training from practitioners, but respondents reported that it clashed with their work schedule (8%). Consequently, I demonstrated that time must be allocated for leadership training during the work schedule so that practitioners would not feel that it was an added chore to their hefty schedules. Management has a role to play in alleviating the workload during professional development, and financial incentives should be provided to encourage individuals to be involved in training that would be outside work hours. Investing in professional development would have a tremendous effect on enhancing leadership capabilities (Howard, Gislason and Kellogg, 2010), if organizations could find the right fit for the needs of its staff (Linscott, 2011).
Finding appropriate leadership training has been perceived as a challenge for practitioners. Some leadership training programs were perceived as irrelevant to the need of environmental practitioners (8%), notably when it was based on leadership in the business world. A lack of comprehensive training (4%) was the last barrier, but it could reflect insufficient advertising for adequate and comprehensive leadership training programs. Another factor that could explain this barrier was that practitioners did not actively and intentionally research adequate leadership training. As I discuss in the following section, more than half of the practitioners that received leadership training felt that their training was relevant.

![Figure 4](image)

> **Figure 4.** Responses of 117 practitioners when asked about the importance of leadership training for professional development.

This plethora of barriers was critical, especially when compared to the demands of practitioners for leadership training. As seen in Figure 4, the demand for leadership training programs was significant, with 70% of practitioners seeing it as a “Very important” part of their professional development. The rest of the practitioners were divided between “Fairly important”
(16%), “Important” (3%), “Slightly important” (6%). Only 1% felt like it was unimportant, and 2% did not know whether it was important for their professional development. Overall, this study suggested strong demand for leadership training and a lack of supply due to the numerous barriers described above.

**6.2 Leadership Training Experiences**

As shown in the previous section, the time and resources invested in leadership training were perceived as a challenge. Therefore, leadership training should not be taken for granted, and the content of programs should be investigated. Practitioners' satisfaction with training must be evaluated, and the feedback generated would help deliver relevant and comprehensive training to practitioners working in the environmental sector. Out of the 171 practitioners involved in the study, 65 individuals provided feedback on their leadership training experience. Figure 5 showed the percentage of practitioners that deemed their training relevant to the environmental sector. The results denoted a positive trend, with 66% that felt the training was relevant, and 26% felt like it was irrelevant.

Further investigation of leadership training content allowed the skills developed by practitioners during training to be categorized within three broad but interlinked domains: individual leadership, team leadership, and organizational leadership skills. Figure 6 was designed by being cognizant of the leadership literature and applying it to my own experience participating in leadership training. My experience as a leadership training participant allowed me to reflect on my domain of impacts which demonstrated that I had the greatest impact on my personal leadership then in turn impact my team and organization leadership. As a result, in figure 6 the individual’s skills were placed at the core of the team and organizational performance because team success would be highest if individuals focused on the organization
and the values, climate, and culture underlying effective interpersonal and teamwork relationships (Leggat, 2007).

Moreover, organizations have been struggling to survive, be competitive, and perform when faced with continuous changes in their external environment (Montes, Moreno and Morales, 2005). The adaptability required would depend on the formal and informal leadership roles within the organization. The skills developed by individuals (e.g., communication, patience, strategic thinking, etc.) would influence team cohesion and competencies (e.g., team development, project management, etc.).

![Figure 5](image)

*Figure 5. The feedback of 65 practitioners when asked about the relevance of their leadership training program relative to their professional needs.*

This teamwork cohesion should be the interplay of an individual’s complementary capabilities and their commitment toward a shared organizational vision (Montes, Moreno and Morales, 2005). The interconnected nature of the three domains would suggest an organic nature
to organizational learning, whereby leadership training effects would ripple through the whole organization and not only to trained individuals.

As previously discussed, there were several barriers to accessible leadership training and management had a role in creating or removing barriers such as cost and time. Additionally, the management of an organization would possess the authority to decide who, when, and where training opportunities happened. Moreover, they would be responsible for creating the structure to support the individuals after their training. Without collaboration between management and newly trained practitioners, the knowledge acquired through training would be wasted resources. This cooperation supported the concept that the practitioner skills exist at the core of the team and organizational cohesion described above.

There would be several benefits to offering leadership training to staff in an organization that would support their staff. For instance, if a robust team and organizational cohesion would be achieved, improve conflict management, objective setting, and task delegation would be more likely to occur. Improvement in tackling daily workflow and internal conflicts would leave more time to tackle more significant and complex challenges, such as improving diversity, equity, and inclusion in the sector.

Additionally, individuals would also feel empowered to step forward during challenging times and take on informal or formal leadership roles when needed. Investment in leadership training for staff should be viewed as a long-term investment in the leadership pool of the organization (Fulmer and Goldsmith, 2001; Rath, Conchie and Press, 2008). In terms of leadership training content, the data suggested that impactful leadership training should be designed to offer the development of skills in three domains: individual, team, and organization.
First and foremost, individuals would need to understand that developing effective leadership attributes would begin as a self-reflection. An awareness of personal leadership strengths and weaknesses would be necessary as everyone would have a unique leadership style (Rath, Conchie and Press, 2008). Additionally, if individuals' attributes would be recognized, diversity would be fostered within teams and organizations. Diversity within teams has shown to be conducive to faster and better problem solving than homogenous teams (Rath, Conchie and Press, 2008; Pfeifer and Stoddard, 2018)

Nevertheless, self-improvement and self-reflection could be quite challenging for individuals, especially if they had no interest or incentives to attend leadership training. Once again, higher management would have to play a pivotal role in fostering and encouraging the self-reflecting and leadership training journey.
Once the personal leadership training has been completed, individuals should then be trained to develop team and organizational leadership tools. In summary, leadership training programs should be structured as a three-part program that would begin as an individual assessment proceed to team leadership skills and then organizational leadership skills.

The three-part leadership training program concept suggested in this study was created through the collection of practitioners' feedbacks from their leadership training program. There were over 50 programs mentioned by practitioners, thus offering a general assessment of leadership training programs. In an attempt at providing additional recommendations for
leadership program structure, practitioners' feedback, and satisfaction level with their programs were also investigated.

Figure 7. The level of satisfaction of 65 practitioners with their leadership training program.

The results showed that despite the challenges of getting relevant leadership training, practitioners were in the majority “Highly satisfied” (49.2%) to “Satisfied” (36.9%) with their experience (Figure 7). The remaining practitioners were divided between “Uncertain” (7.7%), “Unsatisfied” (1.5%), “Highly unsatisfied” (1.5%), and “I don’t know” (3.1%). When asked about their experience, the comments were mostly positive:

“It was a good start. I am not sure how it will ultimately help me be a better organizational leader. I need opportunities to rehearse and role-play. I need to be in conversation with people with my level of experience and area of focus.” Respondent 1

“It reinforced my confidence in my existing skills. It helped me to affirm that I had it.” Respondent 30

“Comprehensive and mutually coherent sets of ideas, values, methods of approach. I developed skills relevant in many different cultural contexts, not just the ‘western way’.” Respondent 5
Simply because my life has changed, and I would invite anybody into my life to witness my "influential/influencing self" and experiences. Respondent 13

“Top-notch instructors. Not a PowerPoint program, but experiential. The best training, I have ever been to.” Respondent 24

Some of the negative comments were as followed:

Much of it seems to be generic 'motivational poster' advice, not focused on techniques, strategies, or anything specific.” Respondent 29

“It was more focused on policy than leadership.” Respondent 25

“Leadership is an abstract concept. If you have not already been in a leadership position before, workshops or modules are unnecessary.” Respondent 34

“I have attended many leadership trainings. Half were worthwhile, and the other half was a waste of time.” Respondent 6

To further evaluate their leadership training experience, an adaptive leadership framework was utilized to create a series of statements about leadership training programs. Practitioners were asked to express their level of agreement to each statement using a Likert scale of 1 (Strongly Disagree) to 5 (Strongly Agree) with an assigned weight to each answer choice. While collecting the data, SurveyMonkey automatically calculated the weighted average for each statement as follows, where:

\[
X = \text{Weight of answer choice} \\
Y = \text{Response count for answer choice}
\]
Total = Number of respondents

\[
\frac{X_1Y_1 + X_2Y_2 + \ldots + X_nY_n}{Total}
\]

The results were summarized and plotted in Figure 8 with the weighted average at the end of each bar. From the results, practitioners showed strong support of the statements and thus highlighted a propensity toward developing adaptive leadership practices during their leadership training. As discussed in chapter 2, adaptive leadership offered the most comprehensive approach to tackle the complexity of environmental challenges and was thus useful in creating comprehensive statements for program evaluation. Practitioners' comments and feedback supported their level of agreements to the leadership statements on their training experience (Table 3).
Despite the overall positive responses, a closer look into the data revealed the gaps in some leadership training programs. For example, the statement with the least support was “Learned how to nurture productive conflict.” Conflict management tools are critical for practitioners to manage interpersonal relationships at work. Conflict is endemic to any organization, but it can be exacerbated in the environmental sector with practitioners dedicated to their life passion. Even when individuals worked towards common project goals,

When offered as part of the leadership training curricula, practitioners commented that it was the most satisfactory (24.4%) and valuable (6.15) aspect of their training, while some
practitioners felt that it was missing from their training (2.1%). Conflict is an integral part of creating changes in values, attitudes, and behaviors (Manolis et al., 2009). Practitioners' ability to engage attention on difficult topics was seemingly not being met by some leadership training program and must be integrated in comprehensive leadership training program structures.

The second statement with the least support was “Allowed me to get and maintain attention on difficult issues. This result denoted that practitioners' ability to engage and retain the attention of stakeholders on difficult topics was not always enhanced through leadership training programs. On the other hand, the statement with most support was “Identify my strengths and weakness as a leader,” which suggested that practitioners were strongly encouraged to focus on their leadership attributes and development. The overall trend for the data was that a high proportion of respondents strongly agreed with the statements, potentially offering evidence for preference to adaptive leadership training.

*Table 12. Summary of the responses of 65 practitioners when asked about the most valuable, satisfactory, and missing elements of their leadership training experience.*

<table>
<thead>
<tr>
<th>Most valuable component of leadership training</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership strength and leadership style assessment</td>
<td>15.2</td>
</tr>
<tr>
<td>Developing new leadership skills</td>
<td>12.1</td>
</tr>
<tr>
<td>Team management</td>
<td>12.1</td>
</tr>
<tr>
<td>Self-assessment and self-reflection on mental models and emotions</td>
<td>9.1</td>
</tr>
</tbody>
</table>
Opportunity to network beyond their organization 9.1
Designing and managing projects 9.1
Acquiring conflict management skills 6.1
Learning effective communication skills 6.1
Learning from failures 3
Learning the theory of change 3
Receiving the certification & added credentials 3
Developing critical thinking skills 3
Learning how to lobby for environmental issues 3
Learning how to engage different stakeholders 3
Developing problem-solving skills 3

<table>
<thead>
<tr>
<th>Most satisfying component of leadership training</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquiring interpersonal skills to manage productive conflict</td>
<td>24.4</td>
</tr>
<tr>
<td>Opportunity to develop a trusted network of practitioners</td>
<td>15.6</td>
</tr>
<tr>
<td>Offered a dedicated opportunity for self-reflection and improvement</td>
<td>11.1</td>
</tr>
<tr>
<td>Learning from other environmental leaders</td>
<td>6.7</td>
</tr>
<tr>
<td>Developing project and human resource management skills</td>
<td>6.7</td>
</tr>
<tr>
<td>Role-playing and case study analysis to promote leadership skills</td>
<td>6.7</td>
</tr>
<tr>
<td>The ability to have an honest conversation within a safe space</td>
<td>6.7</td>
</tr>
<tr>
<td>Discussing and promoting diversity, equity and inclusion in the sector</td>
<td>4.4</td>
</tr>
<tr>
<td>Learning tools for team management</td>
<td>4.4</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Opportunity to do a strength-based assessment with a coaching experience</td>
<td>4.4</td>
</tr>
<tr>
<td>Developing presentation skills</td>
<td>2.2</td>
</tr>
<tr>
<td>Learning how to promote the organization's work</td>
<td>2.2</td>
</tr>
<tr>
<td>Disconnecting from the daily routine</td>
<td>2.2</td>
</tr>
<tr>
<td>Help improve mentoring and training skills</td>
<td>2.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Elements missing from leadership training</strong></th>
<th><strong>Percentage (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity within participants to encourage a broadening of perspective</td>
<td>15.4</td>
</tr>
<tr>
<td>Learning public speaking skills</td>
<td>12.8</td>
</tr>
<tr>
<td>A focus on the challenges on environmental issues</td>
<td>10.3</td>
</tr>
<tr>
<td>Role-playing and case study analysis</td>
<td>7.7</td>
</tr>
<tr>
<td>Not enough sessions to create meaningful change</td>
<td>7.7</td>
</tr>
<tr>
<td>Learning how to counsel peers effectively</td>
<td>7.7</td>
</tr>
<tr>
<td>Mentoring and follow up after training</td>
<td>5.1</td>
</tr>
<tr>
<td>Free time during training to allow self-reflection</td>
<td>5.1</td>
</tr>
<tr>
<td>Learning conflict management skills</td>
<td>2.6</td>
</tr>
<tr>
<td>Regular alumni meeting</td>
<td>2.6</td>
</tr>
<tr>
<td>Exposure to experience environmental leaders</td>
<td>2.6</td>
</tr>
<tr>
<td>How to implement diversity, equity, and inclusion without authority</td>
<td>2.6</td>
</tr>
<tr>
<td>An online platform or discussion forum</td>
<td>2.6</td>
</tr>
</tbody>
</table>
Learning how to devise performance metrics tools 2.6
Lack of training on how to handle inter-department relationships 2.6
Learning growing facilitation skills 2.6
Learning self-confidence boosters’ tactics 2.6
Learning how to implement leadership strategies 2.6
Maintaining effective teamwork 2.6

Additionally, the program evaluation carried out for this study covered over 50 different leadership training programs, events, and seminars, which made comparisons not possible. The research did not evaluate specific programs but instead provided a general assessment of the leadership training sector. The data presented in Table 3 summarized what practitioners found the most satisfactory, valuable, and what element was missing from their respective leadership training programs. This information was used to form the recommendations offered in the following sections.

7. Implications for Organizational Policy and Practices

This research shed light on how powerful it was for leadership training to help practitioners acquire skills that will supplement traditional academic and professional development in order to become efficient environmental leaders. Nevertheless, leadership training has remained a substantial investment of time and resources in a sector that often lacked both. The returns on investment from leadership training programs could be maximized through the implementation of policies and practices that would promote and deliver better training opportunities. Recommendations were thus formulated based on the data analysis as well as a supplementary
literature search on leadership training evaluation. The aim was to improve leadership training experiences for practitioners, organizations, and training centers.

7.1 Recommendations for Practitioners

- Individuals seeking leadership training programs should do thorough research before choosing one. Seeking advice from colleagues or academic peers would be advisable as they may be aware of leadership training programs better suited to the needs of the practitioner.
- Several online strength-based assessment tools and coaching tools were identified during this research and could serve as self-reflection tools to understand personal leadership goals to help choose the appropriate leadership programs.
- Reaching out to training centers or alumni network could also be an effective way to understand the program content and its compatibility with personal leadership ambitions.
- Numerous leadership training programs offered scholarships or grants for practitioners, particularly for underrepresented groups. Therefore, reaching out to training centers before applying would be beneficial to reduce the obstacle that cost could represent.

7.2 Recommendations for Organizations

- Leadership training programs could be considered a long-term investment that would contribute to the leadership capacity and succession plan of an organization.
- A survey of current leadership practices and competencies needed for success could be carried out within the organization to inform critical areas of improvement, thus helping select the most appropriate training program.
- Before sending out individuals to leadership training, individuals could be encouraged to
do an anonymous 360 assessment collecting personal feedbacks and feedbacks from colleagues on leadership strengths and weaknesses to maximize self-reflection during training. The assignment should be carried out at the discretion of higher management with strict policies protecting confidentiality.

- As an incentive to take part in leadership development, policies could be created to give supplementary credentials to individuals that seek out leadership training.

- Policies could be created that ensure that employees are not sanctioned for participating in leadership development programs during work hours. This policy would create an incentive for staff to participate in leadership training.

- Funding should be secured for individuals seeking out leadership training with a team dedicated to administration, budget, and resource requirements.

- Organizations could create a transparent leadership development structure that would encourage leadership development regardless of the position of the practitioners. If only senior staff would receive training, then a structure should be created to encourage the transmission and implementation of the knowledge acquired through training. Therefore, this would provide an opportunity for emerging practitioners to learn from effective leaders.

- A long-term leadership strategy could be created to organize the nomination process to ensure equitable participation in leadership training programs and support succession planning.

**7.3 Recommendations for Leadership Training Programs**

- If leadership training programs aimed to increase accessibility, marketing and
advertisement efforts would be crucial to share the program specifically for training offered by the third-party training outside organizations.

- Online training programs and discussions would be highly beneficial for practitioners with limited travel options and working in remote locations.
- Leadership training could be offered as a three-part training program that would focus on the three domains of leadership development: individual, team, and organization skills.
- Leadership training programs could incorporate personalized leadership assessment to maximize self-reflection during training, with free time dedicated to that reflection during training.
- Leadership training could design curriculums that would be suited to a wide range of positions regardless of their formal authority. Skills targeted should be transferrable and encourage individuals to take on leadership roles when appropriate.
- Programs could create opportunities for sustained networking through online platforms and regular alumni meetings.
- Programs could offer to coach and to follow-up individuals that needed further guidance on their personal and organizational leadership vision.
- Leadership training centers could reach out to underrepresented communities in the environmental sector and offer leadership training opportunities with financial support. This initiative would diversify the pool of participants and encourage the sharing of multiple perspectives during training.
- A combination of conflict management tools, role-play, and case study analysis could be used to improve practitioners' conflict management strategies and would offer an
opportunity for practitioners to reflect on their successes and failures within their organizations.

- Leadership training programs could offer the opportunity for practitioners to explore the behavioral science and social science aspect of engaging and maintaining the attention of key stakeholders.

8. Conclusion

This study demonstrates a strong demand for leadership training in a sector that has been struggling to cultivate effective leadership strategies. However, the demand for leadership training was being met by an inadequate supply of expensive and sometimes irrelevant training opportunities. Numerous barriers existed between practitioners and relevant leadership training program. The issues of accessibility were significantly bigger for individuals in their early careers and underrepresented communities. A lack of diversity, equity, and inclusion in the environmental sector have severely affected practitioners’ ability to provide holistic solutions to environmental issues.

From a practitioner’s perspective, leadership training would need to be approached as a personal journey that can then ripple through team and organization performance. Cohesion within organizations and teams were the product of the interplay between individuals’ complementary capabilities. Hence, an investment in personal leadership development organization was an investment in increased leadership and talent capacity. An organization's investment in leadership training could also be perceived as a logical strategy for sustainable succession planning for key leadership roles.

Globally, environmental organizations have been strong advocates of sustainable practices for natural resource management but somehow failed to incorporate the same ideologies in their
human resource management strategies. While environmental practitioners have urged world leaders to view environmental issues as broad and interconnected, ironically, environmental organizations have been guilty of operating within silos without diverse and collective leaders. Leadership training offered the opportunities to break these silos to allow practitioners to extend their network of influence. For that to happen, diversity, equity, and inclusion should be a core value of organization and training programs.

This study demonstrated the positive role that leadership training held in the creation of effective environmental practitioners. Additionally, the data demonstrated that leadership training could be a successful supplement to academic and professional development. When relevant leadership training was offered to environmental practitioners in organizations that foster personal growth, it offered the potential to maximize the impact of the practitioner.

Environmental practitioners have been playing a key role in leading the cultural evolution needed to reverse the anthropogenic destruction of our planet. Unfortunately, the appropriate tools and skills have not always been readily available to diverse and emergent practitioners. These leadership tools would enable practitioners to become the effective environmental leaders of tomorrow.

9. Literature cited


Foster, M. J., Bennett, C., Sterling, E. J. and Bynum, N. (2011) 'Fostering the development of conservation leadership at minority-serving institutions', Fisheries, 36(9), pp. 461-463.


Likert, R. (1932) 'A technique for the measurement of attitudes', *Archives of psychology*.


Hello and thank you for taking the time to participate in my data collection survey!

My name is Veronique Couttee and I am currently enrolled at University at Albany. I am conducting my research on the importance of effective leadership in the conservation sector. The information collected will be used to assess the leadership style of conservation practitioners and the impact of leadership training on their leadership style. Your participation in this survey is completely voluntary and all of your responses are anonymous. None of the responses will be connected to identifying information.

This project has been approved by the University at Albany Institutional Review Board. Approval of this project only signifies that the procedures adequately protect the rights and welfare of the participants. Note that absolute confidentiality cannot be guaranteed due to the limited protections of Internet access. If you have any questions about this survey, or difficulty in accessing the site or completing the survey, please contact Veronique Couttee at mcouttee@albany.edu

The questionnaire should take about 20 to 25 minutes to complete. Thank you in advance for providing this important feedback.

SECTION 1: In this section we will be asking some general questions about you, your current role and your organization.

1. Which of the following categories best describe your current status?
   - Employed, working full-time
   - Employed, working part-time
   - Student, full-time
   - Student, part-time
   - Volunteer
   - Internship
   - Not employed, looking for work
   - Not employed, NOT looking for work
   - Retired

2. What is your age?
   - 18-24
   - 25-34
   - 35-44
   - 45-54
   - 55-64
   - 65+
3. To which gender do you identify yourself?

- Male
- Transgender Male
- Female
- Gender variant or non-conforming
- Transgender Female
- Prefer not to say

Not listed (please specify)

4. Please describe your race/ethnicity. Select all that applies.

- Asian
- Mixed-race
- Black
- White
- Hispanic
- Prefer not to say
5. Which of the following categories best describe the focus of your work? Select a maximum of three categories.

- Advocacy
- Animal welfare
- Education
- Environmental justice and equity
- Finance and economics
- Forestry
- Communication and Outreach
- Land stewardship
- Law, Policy and regulatory affairs
- Natural resource management
- Ocean and marine conservation
- Open space preservation and park
- Philanthropy
- Scientific research
- Volunteer management
- Water quality and watershed management
- Wildlife, ornithology, endangered or threatened species

Other (please specify)

6. What type of organization do you currently work for?

- Local government
- State government
- Federal government
- Nonprofit
- For-profit
- Academic institution (public or private)
- Student
-
7. What is the highest level of education you have completed?

Not listed (please specify)

8. Type of post-secondary education. Select all that applies.

- Arts
- Business Administration
- Education
- Engineering
- Public affairs and policy
- Public health
- Law
- Science
- Social science

Other (please specify)

9. In what country or countries is the majority of your work focused?

<table>
<thead>
<tr>
<th>Country 1</th>
<th>Country 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of country</td>
<td></td>
</tr>
</tbody>
</table>

If there are more than 2, continue the list in the text box below.

10. What is your current level of management?

- I have executive oversight over an entire organization
- I have executive oversight over a specific department(s) and/or project(s)
- I manage team(s) and/or project(s)
- I provide support and/or coordination for team(s)/project(s)

Not listed (please describe)
11. How many years of experience in the conservation sector do you have?
- 0 - 2 years
- 3 - 5 years
- 6 - 10 years
- 11 - 15 years
- 16 - 25 years
- More than 25 years

12. What is the size of your organization?
- 1 - 10
- 11 - 25
- 26 - 50
- 51 - 100
- 101 - 200
- More than 200

13. How many subordinates report directly to you?
- 0
- 1-4
- 4-10
- 11-15
- 16-20
- >20

14. In terms of effectiveness, how would you rate the overall performance of your organization? In this context, effectiveness refers to the ability of your organization to successfully create results and reach its target?

<table>
<thead>
<tr>
<th>Very low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very high</th>
<th>I don't know</th>
</tr>
</thead>
</table>

SECTION 2: In the following section, we will collect information about your views on leadership.

* 15. Indicate to which the degree you agree with the statements below regarding leadership.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>When difficulties emerge in my organization, I am good at stepping back and assessing the dynamics of the people involved.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When events trigger strong emotional responses in my</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

96
<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>When people feel uncertain about organizational change, they trust that I will help them work through the difficulties.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>In complex situations, I get people to focus on the issues they are trying to avoid.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>When my team is struggling with a decision, I tell them what I think they should do.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>During times of difficult change, I welcome the thoughts any group members.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>In difficult situations, I sometimes lose sight of the &quot;big picture.&quot;</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>When people are struggling with value questions, I remind them to follow the organization’s policies.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>When people begin to be disturbed by unresolved conflicts, I encourage them to address the issues.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>During organizational change, I challenge people to concentrate on the &quot;hot&quot; topics.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>When my team look to me for answers, I encourage them to think for themselves.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>Listening to group members with radical ideas is valuable for the team.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly agree</td>
<td>N/A</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------</td>
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<td>---------</td>
<td>-------</td>
<td>----------------</td>
<td>-----</td>
</tr>
<tr>
<td>I stay attentive and listen to people who don't seem to fit in with the rest of the group.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I thrive on helping people find new ways of coping with organizational problems</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>People see me as someone who holds steady in the storm.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In an effort to keep things moving forward, I let people avoid issues that are troublesome.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>In a difficult situation, I will step out of the dispute to gain perspective on it</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>When people are uncertain about what to do, I empower them to decide for themselves.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>To restore equilibrium in the organization, I try to neutralize comments of out-group members.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
16. Personal Characteristics are the qualities and values that make up the personality of an individual. Rank the following list of characteristics in order of importance for an individual to be an effective leader (1 = the most important and 13 = the least important)

- Need for achievement
- Need for affiliation
- Self-confidence
- Emotional maturity
- Need for power
- Perseverance
- Spiritual Orientation
- Patience
- Passion
- Risk taking
- Lack of ego
- Social awareness
- Trustworthiness
17. Skills refer to an individual's ability and capacity to effectively carry out complex activities or job functions involving ideas, things, and/or people. Rank the following list of skills in order of importance for an individual to be effective as a leader. (1 = the most important and 8 = the least important)

- Interpersonal Skills
- Conflict management skills
- Technical skills
- Conceptual skills
- Time management skills
- Critical thinking skills
- Diplomatic skills
- Political skills

18. Select one or more skills and characteristics that are important for your leadership.

18. Describe what experiences (training, mentorship, work experience, etc.) allowed you to develop the skills and characteristics described in the previous question.

SECTION 3: In this section, we will be asking you questions about your ideas on leadership training programs.

19. According to you, how important is leadership training in the professional development of conservation practitioners?

<table>
<thead>
<tr>
<th>Not at all important</th>
<th>Slightly important</th>
<th>Important</th>
<th>Fairly important</th>
<th>Very important</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

100
21. According to you, is leadership training easily accessible?

- Yes
- No
- I don't know

Explain why.

22. What is your current status in regards to involvement in a leadership training program?

- I have never attended a leadership training and I am not interested.
- I will soon be attending a leadership training program.
- I have previously been involved in a leadership training program.
- I am currently attending a leadership training.

23. Was/is your leadership training program specifically design for individuals involved in finding solutions to environmental issues?

- Yes
- No
- I don't know.
- Prefer not to say.

24. If you would like to, please provide the name of the leadership training(s) or institution(s) with which were involved (Skip to the next question, if you prefer not to answer).
25. Considering all aspects of your leadership training, how would you rate your overall satisfaction with your experience?

<table>
<thead>
<tr>
<th>Highly unsatisfied</th>
<th>Unsatisfied</th>
<th>Uncertain</th>
<th>Satisfied</th>
<th>Highly satisfied</th>
<th>I don't know</th>
</tr>
</thead>
</table>

Please explain.

26. Please indicate your level of agreement or disagreement with each of the following statements:

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities to learn from leadership experts and fellow participants were especially valuable.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Participation in the leadership training has strengthened my relationship with other organizations.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel comfortable contacting colleagues I met through my leadership training for information or advice.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The leadership training has helped expand my network of peers in the conservation sector.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It has been useful to network with peers from the conservation sector beyond my geographical region.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My experience in the leadership training has allowed me to understand the leadership strength and weakness of my organization.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>N/A</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>----------------</td>
<td>-----</td>
</tr>
<tr>
<td>My leadership training encouraged to continue working for my organization</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>My leadership training encouraged me to leave my organization</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I would recommend my leadership training to other conservation practitioners.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Please feel free to further comments on the statements above.


27. Which part of your leadership training was the most satisfying for you? Explain why.


28. Was there any part of the leadership training program that was valuable to your professional development?

☐ Yes

☐ No

☐ I don't know

Explain why


29. Did the leadership training have an online discussion or document depository platform for alumni?
   
   ☐ Yes
   ☐ No
   
   If yes, how often do you make use of this forum/platform?

30. Do you feel that this leadership program was necessary for your personal development?

31. What element was missing or could be improved from your leadership training program?

32. According to you what is missing from the conservation sector to have more effective conservation leaders?
Appendix B Interview Questions for Environmental Leadership Training Program
Administrators

1. What is environmental leadership?
2. Where do you see a gap in environmental leadership? Why is that?
3. Who is your target audience for your leadership training program?
4. What training programs or audience should I target for my questionnaire, given what you understand from my study?
5. Are there any pre and post evaluations of the training you offer?
6. Is there any long term evaluation of the training being carried out?
7. Why do environmental practitioners usually choose to sign up for these trainings? Is it usually an organization sending them or personal initiative?
8. If it is from personal initiative does it happened that there is lack of support from their organizations to participate in the trainings?
9. Out of the goals I describe for my research do you feel the information collected will be beneficial to improving your training.
10. Are there any questions not included in my study which could beneficiate to your programs?
11. Do participants always have formal leadership roles?
12. How many times have the training been restructured since the start of the programs?
13. Do you get feedback from ex participant on behavior change post training?
### Appendix C Leadership Training Programs*

<table>
<thead>
<tr>
<th>Leadership Training Program</th>
<th>Location</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Leadership Program</td>
<td>United States</td>
<td><a href="https://elpnet.org/">https://elpnet.org/</a></td>
</tr>
<tr>
<td>Management Center</td>
<td>United States or Online</td>
<td><a href="http://www.managementcenter.org/">http://www.managementcenter.org/</a></td>
</tr>
<tr>
<td>MSc Conservation and Rural Development at the University of Kent (UK)</td>
<td>United Kingdom</td>
<td><a href="https://www.kent.ac.uk/courses/postgraduate/271/conservation-and-rural-development">https://www.kent.ac.uk/courses/postgraduate/271/conservation-and-rural-development</a></td>
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<tr>
<td>Echoing Green</td>
<td>Global and Online</td>
<td><a href="https://echoinggreen.org/">https://echoinggreen.org/</a></td>
</tr>
<tr>
<td>Society for organizational leadership</td>
<td>United States</td>
<td><a href="https://www.solonline.org/">https://www.solonline.org/</a></td>
</tr>
<tr>
<td>Journey of Facilitation</td>
<td>Online</td>
<td><a href="https://www.journeyofcollaboration.com/">https://www.journeyofcollaboration.com/</a></td>
</tr>
<tr>
<td>Conservation leadership programme in Cambridge</td>
<td>United Kingdom</td>
<td><a href="https://www.geog.cam.ac.uk/graduate/mphil/conservation/">https://www.geog.cam.ac.uk/graduate/mphil/conservation/</a></td>
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<tr>
<td>Agri-Forestry Leadership Program</td>
<td>United States</td>
<td><a href="http://agforestry.org/programs/">http://agforestry.org/programs/</a></td>
</tr>
<tr>
<td>Training of the trainee</td>
<td>United States and Online</td>
<td><a href="https://www.etr.org/ebi/training-ta/types-of-services/training-of-trainers/">https://www.etr.org/ebi/training-ta/types-of-services/training-of-trainers/</a></td>
</tr>
<tr>
<td>Center for Conservation Peacebuilding Workshop</td>
<td>United States and Online</td>
<td><a href="https://cpeace.ngo/services/">https://cpeace.ngo/services/</a></td>
</tr>
<tr>
<td>Kansas Leadership Center</td>
<td>United States and Online</td>
<td><a href="https://kansasleadershipcenter.org/">https://kansasleadershipcenter.org/</a></td>
</tr>
<tr>
<td>Program</td>
<td>Location</td>
<td>Website</td>
</tr>
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<td>----------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Leadership Dutchess</td>
<td>United States</td>
<td><a href="https://www.chamberfdn.org/leadership-programs/leadership-dutchess/">https://www.chamberfdn.org/leadership-programs/leadership-dutchess/</a></td>
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<tr>
<td>Aldo Leopold program</td>
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<td><a href="https://www.aldoleopold.org/teachers-program/">https://www.aldoleopold.org/teachers-program/</a></td>
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<td>Smart Seas Africa</td>
<td>Indian Ocean</td>
<td><a href="http://www.smartseas.org/events.html">http://www.smartseas.org/events.html</a></td>
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<tr>
<td>Youth Climate Leaders Program</td>
<td>Global</td>
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<td>New Leaders Council</td>
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<td>Center for Creative Leadership, Singapore</td>
<td>Singapore</td>
<td><a href="https://www.ccl.org/our-locations/singapore/">https://www.ccl.org/our-locations/singapore/</a></td>
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<td>EDF Climate Corps Fellowship</td>
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<td>Cornell Supervisory Training</td>
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<td><a href="https://hr.cornell.edu/career-management/supervisingcornell">https://hr.cornell.edu/career-management/supervisingcornell</a></td>
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<tr>
<td>International Visitors Leadership Programme US Department of State</td>
<td>United States</td>
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<tr>
<td>Conservation Leadership Core (CLC)</td>
<td>United States</td>
<td><a href="https://www.confedmo.org/clc/">https://www.confedmo.org/clc/</a></td>
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<tr>
<td>National Conservation Leadership Institute</td>
<td>United States</td>
<td><a href="https://www.conservationleadership.org/">https://www.conservationleadership.org/</a></td>
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<tr>
<td>Land Use Leadership Alliance training Program</td>
<td>United States</td>
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<td>Landtrust leadership training</td>
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<tr>
<td>New Jersey Leadership Program</td>
<td>United States</td>
<td><a href="https://www.njlead.org/">https://www.njlead.org/</a></td>
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<tr>
<td>Institute for Conservation Leadership</td>
<td>United States</td>
<td><a href="https://www.icl.org/">https://www.icl.org/</a></td>
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</tbody>
</table>

*This information is subject to change from the time research was carried out.*