Perspectives on Advancing Gender and Environmental Justice: Implications and Applications of a Conceptual Model for Supporting Women's Environmental Leadership

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ABSTRACT

Critical concerns about climate change with rising global temperatures and environmental disasters support the urgent need for environmental leadership strategies and action. Women's environmental leadership is essential for local, national, and international initiatives to mitigate and adapt to the socio-economic as well as human well-being threats precipitated by climate change. Despite evidence and international support and encouragement from organizations such as the United Nations, women's perspectives, particularly those from Indigenous women and Indigenous knowledges, are consistently ignored, under-estimated and under-represented at all levels. This paper makes two significant contributions to support the ongoing struggle to advance women's environmental leadership. First, the aim of this research was to evaluate barriers to women's environmental leadership and source evidence-based principles to create opportunities for diversified input. Second, based on the findings and using the theoretical assumptions of transnational feminist theories and situated solidarity building, a conceptual model that combines three types of leadership was created to advance women's environmental leadership potential. These three types of leadership are: collective leadership, relational leadership, and transformative leadership. The key principles and examples of each of the three types of leadership are presented before the implications and prospective applications of the model are discussed. This article concludes with a hopeful perspective on the future of women's environmental leadership. Perspectives on advancing women's environmental leadership potential are significant for both gender equality and environmental action. This research contributes to innovative approaches for social and environmental justice, which deserve more attention than they are presently receiving. Researchers from various academic fields, particularly those interested in adult education, feminist studies, leadership, environmental and sustainability studies, will find the perspectives advanced by this article useful.

Keywords: *women, leadership, climate change, environmental justice, social justice*

INTRODUCTION

Current projections of climactic extremes, such as those pertaining to compound drought heat waves, suggest it is very likely that 90% of the global population will be significantly more exposed to multiple risks from climate change in the future (Yin et al., 2023). These risks are of concern because of how they impact socio-economic sustainability and human

well-being, and these findings solidify the gravity of the climate crisis and the fact that climate change is one of the most significant threats to human existence (Cianconi et al., 2020; Ojala, 2012; Yin et al., 2023). Climate change is not a new phenomenon. It refers to the long-term changes in temperatures and weather patterns triggered by the increased concentrations of greenhouse gases in the earth's atmosphere, the causes of which are linked to human activities, primarily the burning of fossil fuels (IPPC, 2022; UN, n.d.). However, concerns around the world are escalating because communities are facing increasingly serious threats from environmental catastrophes of ever greater proportion. Environmental consequences and ecological damage of climate change include but are not limited to intense droughts, water scarcity, melting permafrost, uncontrollable wildfires, flooding, catastrophic storms, food security risks, and declining biodiversity (McCowan, 2023; Ribiero et al, 2020; Speakman et al., 2022). For instance, recently, in the Canadian context, it was noted that: "2023 now carries the unfortunate distinction of being Canada's worst wildfire season on record" (Zimonijic, 2023). Concern over wildfires is not an issue limited to Canada or 2023. Communities in other countries around the world, such as France, Italy, Greece, as well as the state of Hawaii, experienced similar grievous environmental catastrophes in the year 2023, and wildfires have been an issue gaining increasing levels of public interest in the last several decades (Sánchez-García et al., 2023). These examples of the devastating environmental effects and mounting concerns for climate change underscore the importance of the perspective of The United Nations Environmental Programme that: "climate action is a task for all of us. And it concerns all of us" (UNEP, n.d., para 2). Taking action on climate change requires new perspectives on leadership and educational solutions that can engage all of us. This is one of the key aspects and gaps that this research article addresses.

Environmental leadership is critical as we face the uncertainties of climate change, which involve complicated and critical ecological problems (Gallagher, 2012). Research that connects leadership and the environment and specifically focuses on environmental leadership did not develop a strong presence until the early 1990s, although environmental leadership perspectives have roots in the 19th century naturalist and intellectual thought leaders (Akiyama et al., 2013; Andrews, 2012). However, critiques are being raised with previous theories and approaches up until now, and research on leadership in the context of climate action and the environment shows that there has been too strong a focus on individual action and traditional, hierarchical conceptualizations of leadership, which has resulted in the exclusion of many different voices and perspectives (Akiyama et al., 2013; Benulic et al., 2022; Grahm-Hansen, 2021). One group whose perspectives are still currently undervalued and who present an understudied area in the environmental and sustainability literature is women's environmental leadership.

The need for women's environmental leadership perspectives is gaining international attention and recognition. For instance, the Glasgow Women's Leadership Statement was signed in 2021, and represents an important joint effort initiative by the COP26

and Scottish Government, calls for action and greater commitment to be made to further gender responsive climate action and initiatives and gender equity in climate leadership (Scottish Government, 2021; Wray et al., 2023). This statement urges actions to be taken to advance the role of women and girls in efforts to address climate change. There are several justifications for the necessity to act on this statement with a growing body of research advocating for more opportunities for women's environmental leadership. As an example, Sturmskyte et al. (2022) argue that we must encourage dialogue and focus on elevating women's environmental leadership because gender equality and environmental goals are related.

The present article contributes to the growing body of literature that supports the need for researching new ways in which we can learn, enact, and embody more diverse and pluralistic approaches to leadership. To be specific, it centers upon ways to advance women's environmental leadership in relation to climate change. The aim of this research was to evaluate barriers to women's environmental leadership and generate a perspective on ways to create opportunities for diversified input from women on environmental decisions and actions. The research question that this paper addresses is: "What are the challenges and how can we create opportunities to elevate women's environmental leadership perspectives?"

With this paper, I make two critical contributions from my academic perspective on women's environmental leadership. The first is a literature review that focuses on what is known in the current literature on women's environmental leadership – both the advantages observed in examples of women's environmental leadership and the obstacles women may encounter to having their voices and perspectives on environmental leadership recognized. I also examine current insights and recommendations for new directions in environmental and climate action leadership. Based on my findings from the literature, in part two of this article I present and discuss a conceptual model that I developed to advance women's environmental leadership. This model combines three types of leadership – collective leadership, relational leadership, and transformative leadership. My decisions in the construction of the model are grounded on two theoretical assumptions, which are transnational feminist theory (e.g., Mohanty, 2003) and situated solidarities (e.g., Nager & Geiger, 2007). After explaining each component of the model, which I support with relevant examples from around the world, I discuss the implications of this model, suggest potential applications of the model, and share final reflections with a hopeful perspective for the future of women's environmental leadership.

LITERATURE REVIEW

This literature review has three parts. In the first part, I present current findings on the impact and distinct advantages that have been observed on how women's environmental leadership can positively contribute to research, decisions, and initiatives to mitigate and adapt to climate change. Next, I examine the complex and intersecting challenges and barriers that are inhibiting women's environmental leadership. Lastly, I discuss current

perspectives and innovations related to environmental and climate action leadership. The history of environmental leadership in the literature can be traced back to the 19th century naturalist and intellectual leaders, but it is exceedingly diverse (Andrews, 2012). The early literature did not include women's voices and perspectives and owing to the heightened awareness of the severity of climate change and the explosion of research in the last several years across disciplines, much of the literature for this review on advancing future research and perspectives comes from the last five to ten years.

IMPACT AND SIGNIFICANCE OF WOMEN'S ENVIRONMENTAL LEADERSHIP

Women are making significant contributions to environmental leadership efforts around the world, but their efforts frequently go underappreciated and understudied (Jeffs, 2022; Jones & Solomon, 2019). Nevertheless, the evidence that is available in the literature is compelling and encouraging for future research and study and deserves more widespread recognition. The following section presents different examples and evidence of the impacts women's environmental leadership is having on social, political, and economic levels, which are relevant at local, regional, national, and global echelons.

At the political level, compared to men in similar leadership roles, women leaders have different responses to environmental issues (Strumskyte et al., 2022). As evidenced by a 2019 study by Mavisakalyan and Tarverdi (2019), women parliamentarians in governments from several countries around the world passed more aggressive climate policies. The results of these female leaders' decision-making to prioritize climate action strategies led to lower carbon dioxide emissions. Mavisakalyan and Tarverdi (2019) conclude that female political representation is a significant but underutilized avenue for combating climate change.

At the community level, when making resource-management decisions and risk-management assessments when compared to men, women often prioritize the welfare and well-being of their families and communities (Jeffs, 2022). Furthermore, the concerns for the well-being of their home and family may in themselves underlie the focus, motivation, and action towards prioritizing the environment in their leadership and decision-making. Furthermore, the specific knowledge women have about their household and family needs is necessary for survival (Allen et al., 2019; Altamirano-Jiménez & Kermoal, 2016). This type of leadership is particularly advantageous in the interest of adaptation to climate-related disasters.

Having more women in science and on research boards could accelerate the fight against climate change with mitigation strategies. Women in research and development positions have proven more effective at scientific research, compared to men who appear to be more efficient at the technology development aspects (Le Loarne-Lemaire et al., 2021). Both perspectives are valuable and playing to the intellectual and professional strengths is logical in the interest of efficiency and effectiveness of scientific research on climate change.

The traditional knowledge and connection to land that Indigenous women possess are invaluable for environmental decision-making and resource management (Kermoal, 2016). Indigenous women embody relationships and responsibilities for protecting the land, waters, environment, and natural resources, which are important for adapting to and mitigating climate change (Altamirano-Jiménez & Kermoal, 2016; Bédard, 2017; Williams et al., 2018).

Barriers to Women's Environmental Leadership

Despite the evidence to support the impact and value of women's environmental leadership, there are still many challenges and barriers inhibiting women's environmental leadership potential. The literature and leading sources on environmental issues and climate change, particularly the United Nations, make it clear that there are numerous ways in which women – especially those in less economically prosperous countries - are disproportionately disadvantaged by climate change and climate-related disasters (Le Loarne-Lemaire et al., 2021; Williams et al., 2018). Advancing women's environmental leadership will involve understanding and confronting these issues and challenges which is the focus of this second part of the literature review. The main challenge areas and barriers identified in this review are access to education, land ownership, common-place individualized and masculinized definitions of leadership, colonialism and gender disparities and divisions in the workplace and climate funding.

Education

Lack of access to or loss of access to education is a complex and critical barrier to advancing women's environmental leadership. Climate-related disasters interrupt girls' education, and after such disruptions, girls are less likely than boys to return to school (Jeffs, 2022). Hetero-patriarchal power-knowledge relations also impact educational access and limit technological capacity, which creates information deficits (Williams et al., 2018). These challenges represent much broader and entrenched socio-cultural norms and behaviours that require attention.

Land Rights and Ownership

The access to land ownership is not equal for women as compared to men, which restricts their decision-making abilities and is frustrating for women and increases the prevalence of poverty and marginalization (Aguilar, 2016; Chigwenya & Ndhlovu, 2016; Duguma et al., 2021). Indigenous women's land rights, in particular, have been stripped away by colonialism (Altamirano-Jiménez & Kermoal, 2016). Not only is lack of land ownership an issue, but there are gender inequity issues between ownership of land. For instance, Agarwal's (2009) research indicates how all-women groups in Nepal received half of the forest area and more degraded land compared to other groups in the area. Practices of denying women's right to land ownership and affording women lower quality land do

not occur in isolation but rather are connected to traditional and patriarchal norms and expectations in the broader context of culture and society that encourage submissiveness and docility (Chigwenya & Ndhlovu, 2016; Duguma et al., 2021).

Leadership as Individualistic and Masculinized

The current paradigm of environmental leadership is singularly based on the interests and perspectives of white men, which has been identified as problematic for being characterized as reductionist, technocratic, and top-down leadership (Allen et al., 2019). This leadership style is proving insufficient for addressing the challenges of climate change, which are multi-facetted, and such a singular and essentialist approach does not take into consideration people who are in the most danger of climate-related impacts (Allen et al., 2019; Yin et al., 2023; Speakman et al., 2022). Homogenous understanding of leadership as an individualized, hierarchical, and top-down process is detrimental to environmental leadership and limits women's environmental leadership potential (Runhaar et al., 2008).

Traditionally, science has been typified as a gendered and patriarchal activity and a masculine endeavour (Shiva, 1997). This is an impediment for women attempting to build careers in science who subsequently may encounter discrimination when trying to advance their careers (Le Loarne-Lemaire et al., 2021). Shiva (1997) was highly critical of Western science's destruction of Indigenous knowledges, and this observation illuminates additional barriers to Indigenous women's knowledge and environmental leadership efforts.

Colonialism

Colonialism maintains the status quo and prevents women's perspectives from being recognized and colonial-capitalist accumulation and exploitation are gendered, racialized, and hetero-normative (Williams et al., 2018). Colonial powers, as mentioned earlier, have attempted to sever that sacred relationship to lands, waters, and the environment that Indigenous women have developed over generations by removing Indigenous peoples from their land (Altamirano-Jiménez & Kermoal, 2016)

Indigenous women are particularly under-represented, and their environmental leadership efforts are obscured and ignored owing to colonial violence and oppression (Aguilar, 2016; Cusicanqui, 2012; Jeffs, 2022). Western science has dismissed Indigenous knowledge as backward, not rational and lesser-than which contributes to ongoing colonial domination (Altamirano-Jiménez & Kermoal, 2016; Quijano, 2007; Shiva, 1997; Smith, 2021). Further impediments come from the enormous pressure and damage that extractive industries connected to colonial-capitalist accumulation cause by ravaging lands of resources, resulting in territorial conflict and horrific violence against Indigenous women (Zaracocin & Careta, 2020). Therefore, Indigenous women's environmental leadership perspectives, which have much to offer, have been doubly disadvantaged.

Gender Disparity and Divisions in the Workplace and Climate Loans

Gender disparity is an ongoing issue in workplaces across sectors, even more so following the COVID-19 pandemic, and these disparities can limit women's environmental decision-making (Caldarulo et al., 2022; Zamarro et al., 2020). Having more women in leadership positions in institutions would drive social and technological innovations (Le Loarne-Lemaire et al., 2021). However, glass ceilings and gender inequalities in workplaces and organizations, which prevent women from advancement into leadership roles, are reasons that, on average, women make up only one-third of environmental ministries globally (Jeffs, 2022). Policies often contain gender biases, and policy makers need to find ways to involve all stakeholders, including women, in policy making and environmental action decisions (Le Loarne-Lemaire et al., 2021; Williams et al., 2018).

Women are less likely to have access to climate funding and financial resources, which is limited by institutional and socio-cultural barriers (Carranza & Niles, 2019; Naz & Doneys, 2022). Local community initiatives are typically small in scope and cannot fulfill the desired timelines and returns of many investors (Jeffs, 2022). Men are more likely to obtain formal loans compared to women, who conversely are more likely to receive support from informal sources (Carranza & Niles, 2019. Moreover, men's financial control, particularly in rural communities receiving loans from credit programs, has a great deal of influence on how the finances from these programs are invested, which undermines women's leadership, and is connected to the gendered division of labour based on patriarchal leadership and values (Caretta, 2014; Naz & Doneys, 2022). It has been found that when women are in decision making positions, the allocation of funding is different, as relates to short-term vs. long-term returns on investment, because women typically invest in household food security and medical expenses, whereas men are more likely to invest in agriculture and livestock (Carranza & Niles, 2019).

This section has summarized a multitude of barriers blocking women's environmental leadership, which are substantial and complicated because they interact on social, political, economic, and systematic levels. Although comprehensive, this literature review is not exhaustive. This review does, however, highlight the need for relational and intersectional understanding of the challenges to impediments to women's environmental leadership in order to conceptualize solutions that are meaningful, strategic, and have a greater chance of achieving desired changes. The challenges are many, and solutions must connect gender, social equity, and climate change (UN Women, 2022). Approaches that meet these criteria will come from exploring alternative frameworks of leadership and action. For instance, Williams et al. (2018) share the perspective that building solidarities across women's groups is imperative for encouraging the paradigm shifts necessary to advance women's environmental leadership. Further discussion on current perspectives on ways to promote environmental leadership with a focus on how these perspectives can support and advance women's environmental leadership is the focus of part three of this literature review.

CURRENT PERSPECTIVES ON ENVIRONMENTAL AND CLIMATE ACTION LEADERSHIP

The current literature on environmental and climate action leadership proposes several recommendations that, if acted upon through appropriate actions and interventions, could be incredibly significant for advancing women's environmental leadership. First, environmental leadership must extend beyond narrowly focused definitions and conceptualizations of leaders (Case, 2015). This viewpoint is logical considering the complex and multi-faceted nature of climate change and its intersections with various topics and academic disciplines (McCowan, 2023; Murphy, 2011). New theories on environmental and climate action leadership, therefore, are looking favourably on pluralistic views of leadership, which counters the individualistic perspective of leadership, and means maintaining the perspective that there is more than one type of leadership and multiple types of leadership may be required at different times (Benulic et al., 2022). Undoubtedly, with the enormity of the impacts of climate change and the fact that climactic events compound and cannot be considered and analyzed in isolation, individualistic environmental leadership approaches are grossly inadequate (Author et al., 2024; Yin et al., 2023).

McCowan (2023) is of the opinion that an "ecology of knowledges will in fact be necessary to address climate change" (p. 939). This will require co-construction of knowledges and new paradigms in teaching, education, and leadership, but presents another layer of challenge because it will require confronting issues of justice and inequity in knowledge construction in academia given the impact of colonialism in knowledge construction (McCowan, 2023; Silova, 2012). More recognition of Indigenous knowledge paradigms and philosophies, which are diverse and relational and have deep insights for tackling environmental issues and environmental leadership, is needed (Lange et al., 2021; Little Bear, 2000). Respectfully learning from Indigenous knowledges can provide "invaluable insights" because of "the ways Indigenous stories provide 'original instructions' for how to care for and relate to the land" (Cajete, 2018, p. 15). Ignoring Indigenous wisdom and leadership is a serious mistake in the interest of future environmental leadership. Still, as Zaragocin and Careta (2021) note, "it is not enough for other epistemologies to be included but rather that the structures that uphold knowledge production shall be decolonized" (p. 1503) and that is where new models of leadership become critically important.

In order to support and address issues concerning women, the environment, and climate change, a feminist and intersectional approach is necessary (Strumskyte et al., 2022). Ecofeminism and ecofeminist theories are one approach that originated in the 1970s and 1980s, which contribute a way of thinking on women and the environment (Philips & Rumens, 2015). However, challenges with the ecofeminist movement are the essentialist perspectives of the theories and that this theoretical position conceptualizes oppression predominantly based on women and nature, with less attention given to other sources of oppression (Moore, 2015).

An intersectional analysis involves understanding the interconnection between social

position, gender, race, class, ability, and other compounding factors that influence power and privilege and, conversely, generate discrimination, oppression, and marginalization (Pictou et al., 2022). There are criticisms of the dominance of Western feminism in discourses and policy analysis which need to be dealt with and may be addressed by bridging Western and Indigenous perspectives, which might be achieved by board crossing practices (Williams et al., 2018).

Recognizing diversity in leadership, honouring an "ecology of knowledges" (McCowan, 2023, p. 393), using feminist perspectives and intersectionality, and avoiding essentialism are elements that are needed to support advancing women's environmental leadership. Finding theories that consider these recommendations from the empirical literature led me to select transnational feminist theories and situated solidarity building as the theoretical assumptions to guide the construction of the conceptual leadership model developed to support women's environmental leadership.

THEORETICAL FRAMEWORKS

Two theoretical perspectives guided the decisions that were made in the construction of the conceptual model that is to be presented in this article. The first is transnational feminist theories (Mohanty, 2003), and the second is situated solidarity building (Nagar & Geiger, 2007; Routledge & Derikson, 2015). In order to understand the methodology and construction of the model, a short overview of the assumptions of each of these two perspectives is given.

TRANSNATIONAL FEMINIST THEORY

Transnational feminisms look for ethical collaboration, solidarity and movement building across borders to challenge hierarchies (Tambe & Thayer, 2021). Transnational feminist approaches use intersectionality in transnational perspectives, border-crossing practices, alliance-building, reflexivity, positionality, and resistance from a global perspective (Enns et al., 2021; Mohanty, 2003). Mohanty (2003) writes that the best feminist praxis requires an internationalist commitment and the two key elements of such praxis involve decolonizing feminism and a politics of diversity. Given this perspective, transnational feminisms are well suited to support environmental leadership because, as McCowan (2023) mentions, a diversity of opinions and an "ecology of knowledges" (p. 393) are needed in decisions and perspectives on the climate crisis.

The challenges of climate change transcend national boundaries and require both local and global leadership and action. Thus, viewpoints that prioritize transnational commitments may become increasingly valuable in the fight against climate change. Furthermore, transnational feminist commitments support breaking down barriers founded upon the misconception that women are a single homogenous category through the use of intersectionality. Using transnational feminist theory also supports de-centering the dominance of Western feminisms, which is present in ecofeminism and environmental

leadership and policy.

SITUATED SOLIDARITY BUILDING

Building solidarity between women's groups can advance women's environmental leadership, as recognized by Williams et al. (2018). Solidarity building is not a novel construct, but situated solidarities, in the context of supporting women's environmental leadership, have yet untapped potential. Situated solidarities are about the co-creation of knowledge across borders and "multiple divides… without reinscribing the interests of the privileged" (Nagar, 2014, p. 82), and they involve dispersing power and challenging traditional hierarchies of knowledge production. Situated solidarities acknowledge solidarity is not homogeneous and seek to build partial synergies between community members to support relationship building (Houston & Lange, 2018; Routledge & Derickson, 2015).

The significance and potential of situated solidarities for advancing women's environmental leadership can be further appreciated when related to situated and embodied knowledges from the work of Donna Haraway (1988). Situated and embodied knowledges are established feminist epistemologies that appreciate partial knowledge that has a particular location and is based on women's experiences and approaches (Haraway, 1988). This theoretical perspective could be exceedingly beneficial for recognizing and supporting differentiated approaches to environmental leadership that are currently underappreciated, particularly Indigenous women's knowledge and perspectives.

METHODOLOGICAL APPROACH

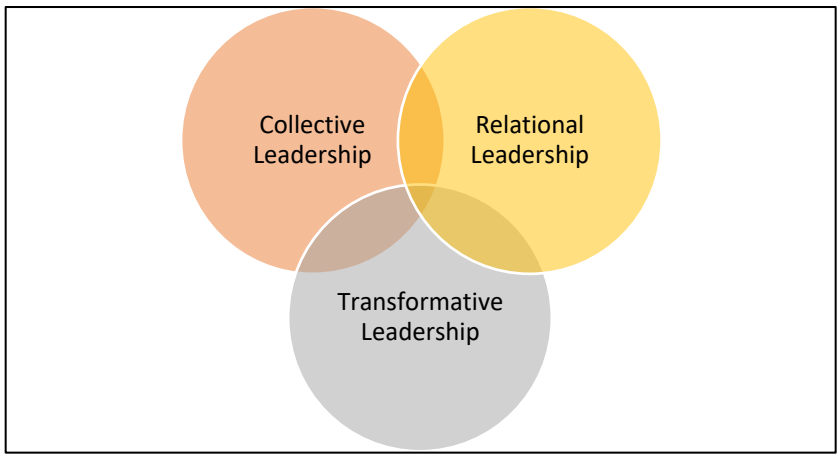
Based on the findings from the literature review and the theoretical assumptions that have been presented, I developed a conceptual model to advance women's environmental leadership. This model was developed in consideration of the challenges and recommendations highlighted in the literature, specifically the need for more decolonial, pluralistic, and diversified leadership approaches for environmental and climate action leadership. The leadership principles that were selected needed to align with these propositions and be supported by the theoretical assumptions. The three types of leadership that were selected and aligned best with these conditions are – collective leadership, relational leadership, and transformative leadership. To emphasize the pluralistic orientation, the model uses interlocking circles to not give seniority to any of the three types of leadership and emphasize the pluralistic understanding of leadership.

RESULTS: A CONCEPTUAL MODEL TO ADVANCE WOMEN'S ENVIRONMENTAL LEADERSHIP

The conceptual model brings together three different leadership styles – collective leadership, relational leadership, and transformative leadership - whose components I propose can work interactively to support women's environmental leadership potential. The fundamental principle underlying this framework is that leadership needs to be multi-

dimensional, with pluralistic approaches that shift away from the dominant neoliberal, hierarchical, exclusive, and inequitable leadership frameworks of the past. The different styles of leadership will be discussed in more depth to demonstrate how each can contribute to strengthening and advancing women's environmental leadership approaches, with relevant examples to provide support.

Figure 1



A Collective, Relational and Transformative Leadership Model

COLLECTIVE LEADERSHIP

Collective leadership appreciates how multiple individuals can engage in leadership and assume leadership roles over time (Eva et al., 2021; Yammarino et al., 2012). This relates to a key distinguishing feature of collective leadership, which is that leadership is viewed as a process rather than a person (Eva et al., 2021). Understanding leadership as a process encourages unsettling the glorified individualistic "heroic" leadership imaginary of traditional leadership ontologies by conceptualizing that the "individual and collective are integrated" (Gram-Hanssen, 2021, p. 7). Understanding the integration between individual and collective impacts leadership practice because it involves showing solidarity by contributing to the collective, as well as being able to leverage individual differences as needed. In this sense, leadership roles are shared, and individuals can contribute their unique knowledge, skills, and abilities, but do so while keeping in perspective the collective (Gram-Hanssen, 2021). Accordingly, Mirza (1997) writes on the importance of female collective action, which she says "offers a new direction for thinking about new social movements, challenging masculine assumptions of social change" (p.18). Encouraging new directions in thinking, building new social movements and challenging masculine assumptions are vital for women's environmental leadership, which is supported by principles of collective leadership.

Collective leadership pushes us to move beyond individual leadership, which has long involved practices of spotlighting individuals seeking prestige, and revising this perspective and leadership narrative can help break down leadership silos (Care et al., 2021).

There is more flexibility in collective leadership, and a collectivist view maintains a dynamic and non-linear conceptualization of leadership (Eva et al., 2021). Crossing borders is a practice that is supported by and also present within transnational feminist commitments. Leadership that puts border crossing into practice would be especially helpful for raising women's environmental leadership because of the challenges and impediments presented by the dominance of hetero-patriarchal and established systems that are gendered and rigid and assume leadership is about dominance and only a masculine terrain.

It is important to consider not only who is leading but how leadership is defined by the collective (Eva et al., 2021). This consideration is important because investing time in redefining leadership conceptualizations presents the potential opportunity for bringing forward women's environmental leadership perspectives and contributions. Collective understanding supports optimum outcomes and is important for collective leadership to be successful and relevant for effective environmental leadership and action (Ferdig, 2017). Putting this principle into practice would require taking a closer look at who holds positions of power and revising policies and practices with a collective leadership focus.

Collective leadership involves roles and responsibilities, but it is not a position or a person, and therefore is more dependent on situational factors (Eva et al., 2021). This feature makes it relatable to situated knowledge and situated solidarity building. Having the ability to respond to issues as they arise in situated contexts is helpful for taking environmental action and responding to environmental catastrophes.

An example of collective leadership is recognizable in women's approaches to community forest management (Duguma et al., 2022). Community forest management is an example of "community-based common property resource management systems" (Bocci & Mishra, 2021, p. 107105). Women's leadership in community forest management in Africa is principally driven by engagement in public meetings and involves decentralized resource management practices, which promote equity and efficiency in decision-making and resource conservation (Bocci & Mishra, 2021; Duguma et al., 2022; Ribot, 2012). Women involved in community forest management also demonstrate a strong motivation for protection of resources by forming patrol groups with other women from their community (Agarwal, 2009). This collective understanding of the importance of conservation and preservation, which is shared by women in community forest management practices, is inspiring leadership and action and is one reason for a noticeable reduction in firewood and timber extraction (Leone, 2019). Moreover, Bocci and Mishra (2021) even identify a connection between women's involvement in community forest management and improved intra-household bargaining power in their communities, which indicates how the collective approach creates changes in positions of power and rethinking of practices. The effectiveness of community forest management practices can be seen in the way that the collectivist mindset within the community supports sharing roles and responsibilities for the environment and greater accountability to the collective rather than individual needs,

which comes as evidence from the decrease in household firewood collection and greater environmental protection efforts (Leone, 2019).

RELATIONAL LEADERSHIP

The principles of relational leadership are about sensitizing leaders to the importance of their relationships (Cunliffe & Eriksen, 2011). In this respect, a relational belief system is foundational for relational leadership and is significant for both advancing women's representation in environmental decision making and women's environmental leadership (Nicolson & Kuraucz, 2017). A relational belief system encourages positive interactions with others — the human and the more than human (Nicolson & Kuraucz, 2017). In a relational leadership approach, the leader is in relation with and morally accountable to others — again not just people but the environment as well, which is much needed when considering priorities for collective well-being in mitigating and adapting to climate change (Cunliffe, & Eriksen, 2011).

Relationality is a concept that has been found in many Indigenous knowledge systems and worldviews for generations (Lange et al., 2021; Little Bear, 2000). There are also relationality conceptualizations and frameworks that have been developed in Western contexts (e.g., Bai et al., 2013). Relationality is a term to describe a way of seeing the world that recognizes and acknowledges the importance of the various and multiple kinds of relationships with others, land, and the environment (Starblanket & Stark, 2018; Wildcat & Voh, 2023). Shifting towards a Relationality Paradigm and away from a Separation Paradigm is a key recommendation encouraged in the literature for moving away from destructive "entrenched ways of thinking and being" (Lange et al., 2021, p. 25) which are harming the environment and contributing to the climate crisis.

Leadership decisions guided by relational understandings and worldviews mean more consideration is given to our relationships with one another and with the environment and our responsibilities. This understanding gives us direction for taking action on social, political, and environmental change because we become aware of power imbalances and asymmetries (Starblanket & Stark, 2018). The altered and expanded perspective that relational thinking provides presents ways to reimagine connection, community, and co-existence (Phillips & Verhoeven, 2020). We need awareness of power asymmetries and consideration for relationships to advance women's environmental leadership, as women's environmental leadership has been obscured and women leaders ignored due to lack of appreciation and recognition.

An example of relational leadership is the environmental leadership shown by the Water Walker in the Great Lakes region of Canada. The Water Walkers are a group of Nishnaabeg women who exemplified relational leadership through their environmental activism by carrying water from the Great Lakes around the Great Lakes region (Bédard,2017; Danard, 2013). The motivation for this environmental activism was to demonstrate the relationships between Indigenous women and the waters of the region and set an example to advocate for

clean water and the need for the protection of water and the environment (Bédard, 2017).

TRANSFORMATIVE LEADERSHIP

Lastly, transformative leadership is a theory of leadership that recognizes that everyone can lead and "everybody contributes to, and in fact cocreates, the world we live in" (Montouri & Donnely, 2018, p. 3). Origins of transformative leadership come from the work of Carolyn Shields (2010; 2011; 2017), who has done a great deal of theoretical and empirical work on this topic. Transformative leadership is not to be confused with transformational leadership. Transformational leadership has the perspective of transformational leaders who are charismatic and trustworthy individuals who inspire others to act with integrity, whereas transformative leadership views leadership as a relational everyday process and that "everyone can be a transformative leader" (Montouri & Donnely, 2018, p. 4). With a focus on justice, equity and democracy, transformative leadership approaches encourage critiquing inequitable practices, oppression, and marginalization (Shields, 2010; 2020). In this way, transformative leadership involves challenging and transforming assumptions and knowledge frameworks that perpetuate inequities, which makes it compatible with situated solidarity building (Shields, 2011).

A key goal of transformative leadership is the transformation for mutual benefit – that is, for both the private and public good (Montouri & Donnely, 2018; Shields, 2020). Montouri and Donnely (2018) conceptualize transformative leadership as a participatory process involving creative collaboration and further suggest that transformative leadership approaches are helpful in making sense of our complex and fast-changing world and allow us to see and prevent catastrophes, which is a perspective that will benefit environmental leadership and action.

Transformative leadership involves maintaining a global awareness that recognizes the interconnectedness and interdependence of experiences that happen in a community (Shields, 2011; 2020). This perspective supports a transnational feminist commitment, which encourages resistance to oppression from a global perspective and has a valuable contribution to make to women's environmental leadership (Enns et al., 2021). The strong focus on deep transformation that recognizes systemic inequities can support addressing both social justice and gender inequity and ecojustice issues. Furthermore, recognizing that everyone contributes to the world we live in and asking people what kind of world they are creating through their thoughts, actions, beliefs, and values supports solidarity building and is important for more democratic environmental leadership approaches and the chances for women's voices being heard on environmental issues.

An example of transformative leadership is recognized in the environmental leadership of the Indigenous women environmental defenders around the world, but particularly in Latin America and the Caribbean (Ulloa, 2016; Zaragocin & Careta, 2021). Against the violence of extractive industries, such as transnational mining corporations, that threaten their traditional lands and territories, everyday people are stepping forward as leaders in

the struggle to protect their autonomy and control of their land and their bodies (Ulloa, 2016). Interconnectedness and interdependence can be identified in how women recognize that "mining activity intersected with women's health problems" (Zaragocin & Careta, 2021, p. 1509), which is a reason why these women are taking action. As Chambers (2020) corroborates in the context of bauxite mining in Jamaica, "attention is not paid to a key issue in the social and cultural impact of mining and manufacture on local peoples" (p. 95). In addition, the leadership of women environmental defenders is connected to resource management and challenges the extractives processes and capitalist development of the transnational mining corporations, which involves global awareness (Ulloa, 2016).

DISCUSSION: IMPLICATIONS, PROSPECTIVE APPLICATIONS AND HOPE FOR THE FUTURE

Considering the size and complexity of the climate crisis and the number of factors and forces undermining women's environmental leadership, as has been discussed thus far in this article, it is understandable that reflecting upon the issues of gender and environmental justice will raise feelings of anxiety and hopelessness for many. Therefore, I seek to end this article on a positive note by discussing the potential implications and applications of the conceptual model and my hope and vision for the future of women's environmental leadership.

IMPLICATIONS

This model has far-reaching implications and applications for supporting diversity in leadership to enhance environmental actions and efforts. The synergistic approach that was used to construct this model is one example of how we can learn to envision and enact alternative approaches to recognize and promote diverse voices and perspectives. Having models and considering leadership approaches that combine different types of leadership is significant for breaking out of gendered, hetero-patriarchal, and neoliberal patterns of thought and assumptions on what constitutes leadership. As I have argued, these perspectives are limited in scope and insufficient for addressing the climate crisis. Furthermore, the way in which this model is structured supports the perspective that multiple types of leadership can exist and be used simultaneously, further shifting perspectives away from a single approach to leadership.

Because there are multiple perspectives present, there is versatility with applicability and leadership strategies based on context and community. This has implications for supporting the future development of pluralistic stances, beliefs, and understandings of leadership, which are important for environmental leadership and solidarity building. For individuals who are uncomfortable with being in the spotlight or unsure of how they can make a difference through their actions, having options and different approaches, particularly approaches that encourage collaboration, will hopefully encourage more individuals to take on leadership roles and action. Another implication of the concept and

development is the anti-essentialist nature of the model, which does not single out one way or one reason for the issues and solutions.

Although there may be some blending and similar principles between the three perspectives, I argue that this repetition is mutually beneficial for reinforcing the changes that are needed to support women's environmental leadership. For instance, all three types recognize connectedness and interconnectedness in some manner, although it is stated and discussed differently. Recognizing interconnectedness or relationships is critically important for realizing the environmental leadership contributions women are making, how they are being oppressed, and even understanding their environmental leadership approaches more fully.

PROSPECTIVE APPLICATIONS

This conceptual model has several potential applications. One application is for leaders to use the model for guidance to strengthen and support their leadership praxis. This might involve choosing principles from the three circles, depending on community and contextual needs and factors, and applying the lens as a framework for leadership decisions and action. A particular circle or leadership type might be more appropriate to one context than another, in which case having multiple options for application is helpful for collective agency and working with the model to develop strategies that suit community needs. Working across the model and challenging leaders to rethink and re-evaluate their perspectives by trying one or more of the different perspectives could contribute novel approaches that might lead to breakthroughs and innovations that could strengthen their leadership.

Another application is to use this model as an assessment tool to develop a more critical understanding and perspective on the leadership approaches already being employed. Based on an initial assessment and recognition of what leadership practices are present, and which of those practices are achieving success or may need revising, leaders and communities can work with the other types of leadership in the model to devise new leadership strategies and/or continue to strengthen and advance women's environmental leadership in their communities. This application could afford new perspectives on leadership practices with fresh insights and directions for leadership efforts and action.

Testing these applications in practice and finding additional applications of the conceptual model would be worthwhile directions for future research and study. Empirical data and application to real-world environmental leadership contexts may either substantiate the model or lead to revisions. Additionally, applying the model to real-world women's environmental leadership contexts may also contribute new insights and perspectives to the three types of leadership that are presently featured in the model.

HOPE FOR THE FUTURE OF WOMEN'S ENVIRONMENTAL LEADERSHIP

Eco-anxiety is a term that is receiving increasing amounts of attention in the literature and relates to the fears and emotional responses that arise from confronting and contemplating

the environmental crisis we are in (Kurth & Pinkala, 2022; Ojala, 2016). It is not uncommon when confronted by the complexity of the climate crisis to succumb to pessimism and hopelessness (Ojala, 2012). These feelings are natural since, on an ontological level, climate change "challenges our conceptions of who we are individually and collectively" (McCowan, 2023, p. 936). Anxiety is frequently typified as a negative emotional state and often evokes a problem-centered focus and perspective (Pinkala, 2022). Given the multitude of factors and forces that are negatively impacting women's environmental leadership, it is not surprising that negative emotional states might similarly impact perspectives on the future and hopes for advancing women's environmental leadership, thereby limiting individual and collective action for change.

Hope is a multi-faceted emotional state that is a necessary element for environmental leadership as it promotes not only more positive feelings but also motivation, which can drive engagement in environmental action (Ojala, 2012; Orr, 2004; Park et al., 2020). At individual and collective levels, hope can contribute to positive change, encourage transformative action, and is considered "interconnected, relational and collaborative" (Strazds, 2019, p. 7). The literature identifies the need for hopeful perspectives for humanity's survival in coping with eco-anxiety and overcoming the subsequent hopeless inaction in the face of climate crisis and environmental disasters (Ojala, 2012; 2016; Wang et al., 2023). Hope in the context of leadership studies is significant for supporting motivation, goal setting and goal pursuit, which influences leadership outcomes (Helland & Winston, 2005). Leadership approaches can also influence and contribute to the development of hopeful perspectives and outlooks, so in a sense, there is a reciprocal relationship (Park et al., 2020). Critical perspectives on hope, and that there are different sources and types of hope, are necessary to leverage this emotional state for leadership and action (Grose, 2020; Pinkala, 2022).

As the examples found in this article through the literature review on the impact of women's environmental leadership illustrate, there is hope for women's environmental leadership. While acknowledging the lack of representation and absence of women's presence and perspectives is important, we cannot forget to celebrate and recognize the stories of success and achievement of women's environmental leadership. This in itself calls for a shift in perspective and what Tuck (2012) describes as moving from a "damage-centered" research approach to more "desire-based" research approaches and perspectives. A "damage-centred" research approach builds narratives that reinscribe the pain, oppression and marginalization of under-represented groups and continues to perpetuate hopelessness in change for the future. A "desire-based" research approach to support community development, on the other hand, recognizes the complexities and contradictions in situations but involves "documenting not only the painful elements of social realities but also the wisdom and hope" (Tuck, 2012, p. 416).

The need for positive storytelling for social and behavioral change was identified in the research by Wang et al. (2023) Therefore, a hopeful perspective is that future research and movements will continue to build momentum, and more and more stories of women's

environmental leadership will be shared and celebrated. It will take courage to test new approaches and explore new methods of leadership. However, with time, tenacity and critical perspectives on the contexts and approaches in action, learning and leadership will evolve, and new narratives and perspectives will emerge to support and solidify women's environmental leadership presence.

CONCLUSION

The results of this research showed the intersectional impact of barriers and challenges that women face because of climate change and social and environmental injustice, which are inhibiting their potential to make a difference in the world through their environmental leadership perspectives. Inaction is not an option amidst the current predicaments of the climate crisis. Without action, the issues impacting gender and environmental justice will continue to increase. Current perspectives on gender and environmental justice suggest that new educational approaches to teaching, learning, and practising leadership are necessary to take steps to address the compounding issues presented by climate change. Specifically, polycentric and pluralistic leadership approaches, which are those that consider leadership from multiple perspectives using critical reflection; encourage diversity in leadership processes; and recognize everyday people are capable as leaders, are gaining recognition and support throughout the literature as beneficial for environmental and climate action leadership (Benulic et al., 2022; Care et al., 2021). In this article, I argued for the need for more diversity and plurality as an important area for research and action to advance women's environmental leadership. I did this through a literature review to support the significance of women's leadership that identified some of the barriers that inhibit women's environmental leadership. I developed a conceptual model, which synergizes collective leadership, relational leadership, and transformative leadership, and represents one attempt to emphasize this need for multiple theoretical perspectives on leadership.

One of the limitations of this model is that it is theoretical and has yet to be used in practice, although I have proposed numerous implications and applications of the framework in this article. Furthermore, the list of barriers and challenges to women's environmental leadership cannot be considered exhaustive nor the same in every context, nor will all of these factors necessarily be present to equal degrees in every context. Therefore, deep understanding and contemplation of context and community is key so that innovation in leadership and actions taken are not prescriptive.

Despite global efforts and commitments that have been made, such as the Paris Agreement between governments to keep the average global temperature increase to 1.5°C above pre-industrial levels. The latest estimates from the IPCC are that there is a more than 50% chance that our global temperature rise will surpass 1.5 degrees between 2025 and 2040 (IPCC, 2023). Advancing women's environmental leadership is critical in the struggle for survival through mitigation, adaptation and hopefully regeneration, not only because it would encourage protecting and promoting the interests of the most vulnerable

but also because women's environmental leadership would help everyone by offering different insights and perspectives. We are at a pivotal time in our history, and now is the time for taking action and making change. Without collective action, we are on a course for self-destruction (McCowan, 2023). Collectivism requires recognizing diversity and working across borders and divides. Diversity in perspectives and in leadership praxis can be mutually reinforcing and supportive, which is what is needed for advancing women's environmental leadership.

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