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Decolonizing Environmental Education: A Resource Guide for Non-Indigenous Educators

Kaitlin Ziehr

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by

Kaitlin Ziehr

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Capstone Project Facilitator: Julia Reimer

Content Reviewer: Jenean Gilmer

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CHAPTER ONE

Introduction

Introduction

The goals of environmental education generally include imparting in students a deeper understanding and connection with the natural world, an appreciation for systems of conservation and sustainability, and a capability to address interconnected issues of environment and climate. Within the United States, environmental education is typically taught as an objective (though sometimes controversial) science topic within the U.S. model of education, which is grounded in the ongoing processes of settler colonialism. This means that environmental education reflects the values inherent in western colonial education, which include individualism, commodification, and hierarchical thinking that places humans as superior to all things, as well as cultural values of white racial superiority, male gender superiority, and a presumed superiority of rational and objective thought associated with Western colonial knowledge systems (Martusewicz et al., 2021). These Western colonial values are inherently biased and a direct obstacle to achieving the goals of environmental education.

Indigenous knowledge offers holistic perspectives and proven models of ecosystem-specific sustainability that have been in practice for centuries. As an environmental educator invested in the success and development of the field, I want to investigate the following question: *How can environmental educators integrate and center Indigenous knowledge in curriculum as a primary source and model for sustainability, understanding natural systems, and developing whole-hearted*

relationships with nature in order to deepen student learning, create inclusive and contextual learning environments, and to work towards restorative justice?

Indigenous knowledge continues to be overlooked in environmental education programs, which indicates that there is much work to be done in regards to acknowledging the ways in which pressing climate and environmental issues are inextricably tied to issues of social and cultural injustice. Our solutions to these interconnected issues must be likewise pertinent, and so our teaching must help our students make these connections. Continuing to teach environmental education within a bubble of colonial values and knowledge is a disservice to our students, our educators, and our future.

Indigenous ways of knowing introduce needed perspectives and approaches to education that include holistic understandings of interdependence and connectedness. Many Indigenous traditions emphasize experiential learning that integrates diverse subjects and learning styles, as opposed to colonial models of isolated or specialized study (Martusewicz et al., 2021). There is value placed on building community and social relationships, and intergenerational knowledge allows for long-term perspectives on environmental and social issues. Indigenous knowledge traditions are tied to the land and all of the living beings specific to that place, with successful and sustainable land stewardship and resource management practices going back centuries (Cajete, 2000). This knowledge is the most valuable resource available to environmental educators; however, non-Indigenous educators must be able to practice restorative justice in order to avoid commodifying or appropriating culturally specific practices, and thereby losing trust and relationships with Indigenous communities and teachers.

Breaking from Western colonial educational traditions is a way to create openings for students who may feel excluded or ostracized due to learning differences, cultural identity, or any number of factors that keep students from succeeding in the existing model of colonial education. Place-based learning is one of many types of environmental education that has stretched the possibilities of how lessons can be imparted; however, it is often held back in its ability to reach more diverse learners. Environmental education tends to teach about place in terms of data and presumed scientific objectivity. Indigenous perspectives view place itself as the teacher, and our human role in relationship with the land as learners and caretakers.

In order for students to understand the circumstances that have led to the environmental issues we currently face, they need to have a critical grounding in truthful historic context. While many environmental education units tackle current issues, rarely do they examine the large-scale belief systems and social structures that have led to those issues. Students need to have the whole story in order to understand their own place within the living social systems they exist in and move towards more holistic, sustaining, and reciprocal ways of living.

Personal Context

I grew up on Dakota land in urban Minneapolis, in predominantly white, affluent neighborhoods, communities, and schools. While I was generally successful in school, none of the things that best describe who I was as a child and young adult seem to fit within the confines of formal education. Like many children, I found pleasure in spending time outdoors reading under the shade of a tree, scrambling on rocks, and

swimming in lakes. I had a deep love for animals, and a curiosity about people and the natural world that sparked my imagination.

Environmental education was for the most part an extracurricular activity separate from school, and the additional expense prohibited families lower on the socio-economic ladder from participating. My elementary school offered an "outdoor club" and a few school trips to outdoor learning centers, and I spent summers at overnight YMCA camps for many years. I relished these experiences, and didn't notice as a child that it was most often the white kids that went on the outdoor club trips and to summer camp. Most of my teachers were white, all of my camp counselors were white, and a good majority of my peers were, too. Data from the National Center for Education Statistics confirms this experience, noting that eight in ten public school teachers in the U.S. are white, and in schools where the majority of students are white, 97% of the teachers are white (Schaeffer, 2021).

My experiences with the Indigenous people and culture of the places I lived and learned were few and far between. Dakota people were almost never mentioned in the whole of my formal education within the Twin Cities on Dakota land, even during the required sixth grade year of Minnesota history. My elementary school was a Quaker school and strongly valued equality and social justice, with yearly units on the Civil Rights movement and early abolitionists, but offered little on any other topic. I remember once learning briefly about the relationship between early European fur traders and the Dakota and Ojibwe tribes with which they traded on a trip to a northern Minnesota environmental learning center in middle school. I had a few friends who would occasionally talk about going to powwows, and I remember being curious but unsure of

what to ask. I devoured historical fiction novels, especially ones about white colonial settlers and Native American encounters, and was excited when the American Girl Doll company released a Nez Perce doll. My understanding of Indigenous culture and history was limited and extremely whitewashed.

I became passionate about issues of social justice and the environment as a teenager and young adult, organizing a walk-out protest against the U.S. Invasion of Iraq in high school, attending Critical Mass bike protests, and participating in the Occupy Movement as a college student in Seattle. I also sought non-traditional educational settings, spending a year at a British Quaker boarding school before finishing high school at Minnesota's Arts High and moving to Seattle to attend an arts conservatory college. While I found more opportunity for creative synthesis of ideas and interdisciplinary approaches in arts education, I became frustrated with curriculum literature that highlighted primarily white male playwrights. I noticed the social and political apathy of my peers and struggled to reconcile the disconnect I felt between the art and theater makers around me and the circumstances of our world.

With the rise of movements like Black Lives Matter, Me Too, Missing and Murdered Indigenous Women, and the Land Back movement, I became more acutely aware of the social injustice woven into the very fabric of American culture. I began attending anti-racist activist meetings in Seattle and delving into research and investigation into my own positionality as a white woman. I came to recognize that there were large pieces missing from the education I had received, and learned to look to leaders within Black, Indigenous, and other communities of color for guidance and direction.

I came to pursue a Masters degree in environmental education after spending many years seeking out natural settings as a way to help ground myself and balance my mental health while navigating an ever-changing world. Compounding climate crises and social injustices led me to seek ways to help current and future generations have the knowledge and skills to make better choices for the health of their communities and for the living systems they are a part of.

I understand that within Indigenous history I can find pieces of my settler colonial family's story, and those pieces are important. It may not be history that my family typically recognizes or feels proud of, it is not the family stories that have been passed through generations, but it is a truth that we need to be able to hold simultaneously with our pride and our struggles in order to repair our own relationships with the land, with the original people of this land, with our past, and with our future. My family's ability to immigrate to the United States and establish homes and businesses is directly tied to the attempted eradication of Indigenous people and culture. Without the history of colonial violence, displacement, broken treaties and forced assimilation, I would not have been born the person that I am or lived the life that I have. Learning my own history and the teachings of this land that I live on, the land that nourishes and sustains me, is what inspires me to work towards learning and teaching in a way that nurtures and grows caring and reciprocal relationships with all things.

Summary

While there is certainly value in aspects of mainstream education, an educational system that teaches white and eurocentric history as unequivocal truth while leaving Black, Indigenous, Latino/a/x, and Asian history relatively untouched or sidelined as

small side topics is an incomplete system that leaves its students ignorant to their own past and ill-prepared for the future. An education system that teaches science as disconnected from the lived experiences of its students is a system where students are unable to make personal connections to the very world they live in.

The field of environmental education can offer learning experiences that reach students in deeper and more meaningful ways. It is held back by a commitment to the same colonial values that have led to environmental and cultural destruction. A decolonized curriculum that centers Indigenous knowledge has the potential to guide students towards more wholehearted learning experiences to develop reciprocal relationships with the living systems that they are a part of. By understanding the context, history, and teachings of the land, we are better able to make decisions that benefit the well-being of all living things for now and for the future. It is my hope that environmental educators will be able to apply this project towards creating a decolonized curriculum and evolving their own teaching methods in order to develop more grounded, contextualized, relationship and system focused lessons.

Chapter Two will consist of a literature review to examine the purposes and content of Indigenous environmental education, as well as the history of colonial teaching principles within the field of environmental education. It will also explore various models of environmental education and the pedagogical theories within them. Chapter Three will describe the methods used to create a resource guide to help environmental educators develop decolonized curricula for their specific educational setting. Chapter Four will discuss major findings from the process of the development of this resource guide, including any surprises or unexpected challenges.

CHAPTER TWO

Literature Review

Introduction

Chapter Two provides a review of the literature regarding settler colonial roots of education in the United States, Indigenous ways of knowing, and environmental educational models to support critical sustaining relationships with the natural world. The literature review supports an effort to answer the research question: *How can environmental educators integrate and center Indigenous knowledge in curriculum as a primary source and model for sustainability, understanding natural systems, and developing whole-hearted relationships with nature in order to deepen student learning, create inclusive and contextual learning environments, and to work towards restorative justice?*

Recognizing that settler colonialism provides an underlying basis of historical context, social values, and ongoing structures of power within educational institutions that perpetuate destructive environmental and social justifications, it is necessary to develop critical theories to disrupt systems of settler colonialism. The field of environmental education has emerged with many directions for the development of more meaningful learning experiences. In examining scholarly perspectives regarding Indigenous environmental knowledge, the importance of centering Indigenous scholars, Elders, and communities cannot be overstated. In order to ethically and responsibly represent Indigenous knowledge and shift mainstream education towards inclusive, culturally responsive, socially restorative, and environmentally sustainable models,

educators and learners must be able to practice self-reflection and critical analysis, positioning themselves as learners and not experts in Indigenous contexts.

Settler Colonialism

Examining the ongoing process and effects of settler colonialism in the United States is essential for understanding the current state of education and settler-Indigenous relationships. Governmental, cultural, and educational systems have been intentionally created and sustained in support of white supremacy. Explicitly acknowledging the ways in which settler colonialism continues to shape and influence the perspectives we are taught to identify with is the first step towards a critical understanding and ability to disrupt systems of injustice.

Settler colonialism is a form of colonialism that seeks to completely replace the original inhabitants of a place with a new society of settlers (Tuck & Gaztambide-Fernández, 2013; Veracini, 2011). Distinct from colonialism, in which colonizers seek to exploit labor or goods from the colonized and maintain a hierarchical power structure, the ultimate goal of settler colonialism is to extinguish the Indigenous population, which is accomplished through a variety of means (Snelgrove et al., 2014; Veracini, 2011). In the case of European settler colonialism in North America, examples of attempts to erase Indigenous people include acts of genocide, disease, forced removal from land, cultural repression, forced assimilation, and cultural appropriation. Though it is often viewed through the lens of historic events in the past, settler colonialism is an ongoing system made up of relations and conditions that continues today (Calderón, 2014b; Mamdani, 2015; Mikdashi, 2013; Tuck & Gaztambide-Fernández, 2013). There are multiple theories regarding what decolonization would mean or look like. Settler

colonialism seeks to vanish Indigenous people, making their continued survival itself an act of resistance (Veracini, 2011).

For many thousands of years prior to European contact, diverse and thriving nations inhabited the North American continent, with many languages, cultures, established metropolises and transcontinental trading routes (Cahokia Mounds Museum Society, n.d.). For over a hundred years Indigenous peoples had diplomatic trade relationships with Europeans that included exchanges of goods, languages, and culture, similar to the exchanges Indigneous communities maintained with one another (Brooks, 2018). When Europeans began to permanently settle in North America and claim land and resources for themselves, the previously export-focused model of colonialism shifted to settler colonialism (Brooks, 2018). European settlers saw the land in North America as *terra nullius* or empty land (Calderón, 2014b), free for the taking and fulfilling of the settlers' *manifest destiny,* their sense that this "new world" was a gift from God to them alone (Tuck & Gaztambide-Fernández, 2013). European settlers saw land and resources as commodities to buy and own, and proceeded to strike often less-than-legitimate treaties with Indigenous people for possession of land (Brooks, 2018; Calderón, 2014b). To continue European expansion, settler courts passed laws and judgements based on a presumption of inherent European superiority over Indigenous peoples, establishing white supremacy in the settler legal system (Calderón, 2014b).

As settler populations grew and expanded across North America, the newly created United States government initiated an ongoing legacy of intentional and systematic acts of genocide against Indigenous people. Education was used as a violent tool for assimilation. Native children were forcibly removed from their families to

residential schools, sometimes never to return. These residential schools sought to "kill the Indian, save the man" (R. H. Pratt as cited in Tuck & Gaztambide-Fernández, 2013, p. 76). Indigenous children were abused, starved, and forbidden from using their own languages or practicing their own culture in an effort to assimilate them completely into white American society (Mikdashi, 2013). This process of ethnic cleansing and internment of Indigenous people was the first of its kind and served as a prototype for German Nazi genocide (Mamdani, 2015; Tuck & Gaztambide-Fernández, 2013).

Education has also ensured the erasure of Indigenous people within settler culture. As Mamdani (2015) writes, the American identity is that of the settler. The Native does not exist and is not considered. Calderón (2014b) argues that the education system in the United States is saturated with settler colonial narratives. She points to the pervasive ideologies of the United States as a "new society" (p. 318), a nation of immigrants, all the while centering white experiences and ways of knowing. Tuck and Gaztambide-Fernández (2013) point out that the normalization and superiority of white narratives make it so that whiteness and settler perspectives are invisible unless threatened. This secures non-white perspectives as other and inferior. They maintain that education in the United States and Canada has been a white supremacist project from the start, with a primary aim to preserve ideologies that justify the settler colonial appropriation of Indigenous land. They note that curriculum acts as an extension of the ultimate goal of settler colonialism: to extinguish Indigenous peoples in all sense and replace them as the rightful occupants of the land. In order to soothe settler anxieties and sense of belonging, the present relationship between Native communities and settler

colonists is taught through a lens of the past, without acknowledgement of current

conditions (Tuck & Gaztambide-Fernández, 2013).

Modern statistics of suicide, poverty, addiction, domestic violence, and disease

within Indigenous communities is directly tied to the conditions of settler colonialism.

Indigenous people in the United States did not gain citizenship until 1924, civil rights

until 1968 (Mamdani, 2015), and are still subject to intentional laws and policies that

dispossess them of land over generations (Mikdashi, 2013). Data from the 2019 U.S.

Census shows a poverty rate of 25.4% for Native Americans, which is higher than any

other racial group in the U.S. While median incomes of American Indian and Alaska

Native households are significantly lower than white ones, income on reservations in

particular were 68% lower than the national average in 2015 (Asante-Muhammad et al.,

2022). Reservation land is often rural with few natural resources, offering limited jobs

and access to healthcare, and federal policy prohibits reservation land from being bought

or sold, which keeps people living on reservations from being able to own their own land

(Riley, 2016).

With restricted federal loan assistance programs, inequitable access to quality

housing, and limited ability to build financial equity, high rates of poverty continue

through generations, as do other disparities that come with people struggling to survive

like higher rates of crime, alcohol use, and suicide (Asante-Muhammad et al., 2022). As

modern textbooks continue to teach frontier narratives (Calderón, 2014b), as Native

people fight to preserve their language and culture, contend with appropriation found in

Halloween costumes, sports mascots, and cartoons (Mikdashi, 2013), and combat

ongoing corporate and government destruction of Native land, it is clear that settler

colonialism is an ongoing process (Wolfe, 2006).

Decolonization

Decolonization is a term used to describe the dismantling of settler colonial

structures in order to center Indigenous ways of life. The concept of decolonization is one

fraught with differences of understanding and perspective. Veracini (2011) proposes that

either the colonizers need to leave the colonized place, or the power relationship between

colonized and colonizers needs to be one of complete equality in order for a previously

colonial society to be considered decolonial or postcolonial. He extends this line of

thought to settler colonialism to say that if successful settler colonialism requires the

extermination of Indigenous peoples, then the continued existence of Indigenous people

and a continuous relationship between settler and Indigenous people signal resistance to

settler colonialism. Tuck and Gaztambide-Fernández (2013) point out that their concept

of Indigenous futures does not necessitate settler colonial versions of justice like revenge

or removal of all settlers. Waziyatawin (2008) also acknowledges that it is not realistic to

advocate for a removal of all settlers, as Indigenous contemporary ways of life are too

tied to settler society. Mamdani (2015) considers decolonization in comparison to the

process of reconciliation in post-Nazi Germany, suggesting a focus on the systemic,

institutional, and ideological forces that led to and enabled genocide. Meanwhile,

Mikdashi (2013) suggests that settler colonialism is too deeply ingrained in American life

and culture to have any simple answers.

Looking specifically to decolonization in education, Calderón (2014b) posits that

decolonization in curriculum is a process through which western knowledge and

institutions and the ways that they perpetuate ongoing oppression of Indigenous peoples are critically examined and challenged. Brooks (2018) also views decolonization as an ongoing process, however Veracini (2011) makes the distinction that in order to move against the settler colonial goal of finality, any form of reconciliation must be an open-ended practice. While some scholars like Beckford et al. (2010) and Nesterova (2020) propose integrating Indigenous perspectives into mainstream curriculum, Tuck and Gaztambide-Fernández (2013) assert a process of rematriation to ensure that Indigenous peoples maintain authority over the knowledge and narratives shared with the intention that they may choose not to share knowledge with colonial institutions deemed undeserving.

Snelgrove et al. (2014) stress the importance of centering Indigenous perspectives and voices in any approach to decolonization due to the tendency of white scholars to overshadow Indigenous scholars, despite having good intentions to critique settler colonialism. Tuck & Gaztambide-Fernández (2013) also comment on that tendency, noticing how the process of settler colonial replacement shows up in academic settings when white scholars use the knowledge they have gained from Indigenous peoples to displace Indigenous scholars as experts. Corntassel (Snelgrove et al., 2014) suggests a relationship-building approach based on a Cherokee Elder's guidance:

> You are to come in the calmest, gentlest state of your being. This exemplifies to'hi dyanisti, or a call to peaceful or healthy relationships. You only approach another Indigenous nation after you have thought it through, over and over again, and if there is willingness on the part of the host nation(s) to include or accept strangers (Cherokee Elder Benny Smith as cited in Snelgrove et al., 2014).

Both Snelgrove et al. (2014) and Waziyatawin (2008) also emphasize the critical need for real transformational action and transitions of power within institutions in addition to holding critical discussions and building settler-Indigenous relationships focused on Indigenous liberation and sovereignty.

Indigenous Ways of Knowing

Indigenous ways of knowing consist of teachings, practices, beliefs, and values of Indigenous communities that have been passed down through generations. It is important to note that Indigenous peoples and knowledge are not a monolith, and communities throughout the world hold their own diverse culturally-specific and land-specific traditions. Indigenous knowledge and culture are strongly tied to the traditional land of Indigenous communities. Indigenous culture and traditions are as diverse as the landscapes and ecosystems they are born from (Cajete, 2000). There are currently 574 federally recognized sovereign tribal nations in the United States (National Congress of American Indians, 2020) and 150 Indigenous languages still spoken in North America (Campbell & Bright, 2016). At times this section of the paper may address settler colonial education (also called Euro-centric, Western, or mainstream education) and Indigenous education with broad strokes or generalizations. When this is done, the intent is to point to overarching educational ideologies and methods that present opportunities of departure from settler colonial education, not to wash over the valuable diversity of traditions and teachings in Indigenous cultures. Some common themes that transcend multiple Indigenous communities have emerged, which include deep-rooted connections with place and land, respectful relationships with natural resources, a sense of spirituality

innate in all things, responsibility and sustainable stewardship of land for future generations, and knowledge of interconnected living systems in the natural world.

Beckford et al. (2010) acknowledge that within the United States educational system, Indigenous perspectives and knowledge have been discounted and dismissed in intentional and systematic ways through history and in ongoing contemporary academic prejudice towards Western Euro-centric ways of knowing. They note that this bias extends to the field of environmental education, resulting in Western scientific methods being seen as objective, rational, and intelligent, and Indigenous knowledge seen as limited and unintellectual. As some scholars begin to recognize the value of incorporating Indigenous knowledge into curriculum, there are questions about how to appropriately present Indigenous perspectives to avoid romanticizing or appropriating Indigenous culture. A critical piece is to build relationships with Indigenous scholars and communities so that they continue to have ownership and autonomy over the narratives and knowledge shared (Snelgrove et al., 2014).

In approaching Indigenous ways of knowing, we must be willing to set aside a presumed superiority of Western knowledge and accept that Western ways of knowing may not be complete or all-encompassing. Indigenous knowledge can be seen as equally complex and nuanced, containing practical, spiritual, relational, and holistic approaches to understanding the universe and our place, as humans, within it. In comparing Indigenous and settler knowledge and systems, Chief Oren Lyons (as cited in Ausubel, 2016a) suggests that American ideals of democracy were actually founded on Indigenous leadership and decision making as settlers saw it modeled in early colonial interactions with northeastern tribes. In fact, Benjamin Franklin's initial plan for the United States

was modeled after the Iroquois League of Five Nations' constitution, called the "Great Law of Peace" by suggestion from the Iroquois Confederacy (National Congress of American Indians, 2020).

Barnhardt and Kawagley (2005) also argue the validity of Indigenous knowledge, pointing to the depth of knowledge gained from generations of people who have learned to survive and adapt in specific landscapes and changing social environments, all the while sustaining their unique philosophies. Tuck et al. (2014) point to settler colonialism as the systemic root cause of environmental degradation. Cajete (2000) also views the environmental destruction of the modern era as directly related to settler colonial values of individualism, commodification, power, and control in society, leading to destructive relationships with the natural world. He proposes that Indigenous philosophies present an opportunity to reconsider how we live and relate to the living universe and move towards more holistic, sustainable, and reciprocal ways.

Indigenous knowledge is strongly rooted in connection to place and environment (Barnhardt & Kawagley, 2005; Cajete, 2000; Martusewicz et al., 2021; Whyte et al., 2019). Knowledge of natural processes, astronomy, plant domestication and plant medicine, hunting, fishing, geology, (Barnhardt & Kawagley, 2005; Cajete, 2003) forest, water, and land cultivation and management practices, and systems of transportation and trade (Whyte et al., 2019) have ensured the survival of Indigenous people for thousands of years. The understanding that humans depend on and are a part of natural systems is integral to the identity of many Indigenous peoples (Beckford et al., 2010). There is no separation between humans and nature.

Cajete (2000) expresses the highly contextual nature of Indigenous knowledge, where learning is gained through direct experience and application, as well as through play and creative expression. From his perspective as a Tewa author and educator, Cajete (2000) provides a guide for the philosophical basis and models of Native education, which include an emphasis on relationship, spirituality, practical experience, and integration of knowledge. The process of "coming to know" (Cajete, 2000, p. 80) differs from Western ideas of learning in that it involves observation, hands-on practice, as well as periods of deep reflection. Scientific and practical knowledge are inseparable from spiritual and creative senses, all coming together to form greater meaning, which is reflected in Indigenous languages (Cajete, 2000; Kimmerer, 2013; Whyte et al., 2019). Barnhardt and Kawagley (2005) also point out how Indigenous education prioritizes understanding of relationships and patterns in the natural world, suggesting that the compartmentalization of academic subjects in Western education limits understanding of how subjects relate to each other and the greater universe.

Whyte et al. (2019) connect the continuous ability of Indigneous people and culture to adapt under the pressures of environmental change and social upheaval to the understanding of change as a constant within Indigenous philosophies. They give examples of Anishinaabe stories of migration, seasonal movement in relation to the environment, and the 13 moon system where each moon correlates with specific use and relationship to different plants and animals. They tie this understanding to the survival and future of Indigenous people, and to the nature of the living world. Barnhardt and Kawagley (2005) suggest that this capability towards change, along with the sense of

environmental connection and responsibility, could serve as a model for mainstream society to adapt to current and future environmental and educational challenges.

Kimmerer (2013) provides examples of the gift economy present in multiple Indigenous societies, where resources are viewed as gifts from the land, plants, and animals themselves. She describes the Potawatomi guiding knowledge she was taught that prescribes that one only takes what is freely given, first asking permission from the living thing, never wasting any part, and never harvesting the first of its kind found, ensuring that there is always some left. Respect and reciprocity is required for any gift received, whether that is words or prayers of thanks, or action to ensure that the plants or animals that have provided the gift thrive and prosper. Kimmerer (as cited in Ausubel, 2016b) proposes that current conditions of environmental degradation, species extinction, and resource scarcity and commodification might not be so dire today if Indigenous principles of the gift economy were prevalent in settler society. Waziyatawin (2008) similarly ponders whether modern environmental crises would exist today if settler colonialism never reached North America and Indigenous cultures had been allowed to progress and develop unhindered, hypothesizing that the guiding cultural principles of the Dakota people could have kept Indigenous people from creating such unsustainable systems as the United States now perpetuate and depend upon.

Incorporating Indigenous Teachings into Mainstream Education

Barnhardt and Kawagley (2005), Beckford et al. (2010), and Martusewicz et al. (2021) all consider what it would mean to incorporate Indigenous teachings into mainstream education. Beckford et al. (2010) suggest using Indigenous accounts of environmental injustice and climate related challenges to illustrate the connections

between humans and natural systems, and presenting Indigenous perspectives as part of the curriculum. They note that Indigenous knowledge should not be treated as alternative or extra in comparison to Western perspectives, but integrated as one of many perspectives provided. Barnhardt and Kawagley (2005) suggest combining Indigenous and Western science approaches to create a new holistic method that represents both perspectives. They also emphasize the importance of Indigenous self-determination within collaborative educational research and development, recognizing that Indigenous knowledge should first benefit Indigenous communities, while also acknowledging the important benefits Indigenous education offers non-Native learners. Lowan-Trudeau (2019) proposes "two eyed seeing" or "multi-eyed seeing" (p. 351) similar to Kimmerer's (2013) concept of *walking in two worlds*, where one foot, or eye, is Indigenous, and one is Western. Similar to how most Indigenous people in the United States have had to experience and learn through Western mainstream education as well as their own cultural traditions, so too should non-Indigenous learners be immersed in both Western and Indigenous knowledge equally in order to seek best practices and solutions.

Tuck et al. (2014), however, assert that any form of education or justice that does not actively disrupt settler colonialism and instead incorporates Indigenous knowledge into settler colonial systems is "invested in settler futurity" (p. 16). Numerous Indigenous scholars (Lowan, 2009; Tuck et al., 2014) strongly critique the tendency of non-Indigenous institutions to adopt reductive versions of Indigenous knowledge without dismantling or even critically assessing internal systems of settler colonialism. In order to support the revitalization of Indigenous traditions, philosophies and practices need to be

centered and taught by Indigenous people with the goal of securing Indigenous futurity (Tuck et al., 2014).

Environmental Education

Environmental education is a field invested in teaching about natural systems and examining environmental issues. With a goal of increasing pro-environmental attitudes and behaviors and developing critical problem solving skills in order to help learners make informed decisions and take responsible action, a variety of topics and approaches are used by environmental educators in various settings. These settings include science curriculum in schools, after school programming, environmental education centers, nature-based schools, parks and recreation programming, and informal education settings like summer camps, zoos, and museums. While environmental education is historically rooted in Western science and academic traditions, methods and attitudes about learning can be more unconventional, and often include experiential, multisensory, and cross-curricular learning. Environmental education is flexible in that it is a relatively new field, gaining traction and prominence in the United States in the 1970s (Potter, 2009) and again in the 1990s (Palmer & Neal, 1994) with the National Environmental Education Act (NEEA) (1990). More recent climate news, studies, and events have increased public awareness of current environmental issues, making forward-thinking environmental education a necessity in today's society.

Though the concept of environmental education has been established in the United States for over 50 years, Potter (2009) points out that the NEEA expired in 1996 and has never been officially reauthorized or updated, though some NEEA programs and mandates within the EPA do continue to receive funding through Congress. Potter cites

recommendations for improving environmental education programs that include informal educational settings, interdisciplinary learning, and the need to reach wider audiences including historically marginalized populations, though she also questions whether the field of environmental education may be stretched too thin between disparate directions to be effectively reaching the main goals of facilitating an environmentally literate society. Payne (2006) also notes challenges within environmental education curricula, noting that curricula have not kept up with growing trends in environmental education philosophy. Overlapping theories strive to develop environmental education that is relevant to and critical of social and political contexts; however, they have little effect on mainstream understanding and teaching of environmental education.

Cronon (1996) identifies the roots of environmentalism in the United States as directly descended from ideologies of romanticism and the myth of the American frontier. According to Cronon, a sense of nostalgia for an imagined history where uninhabited wilderness inspired rugged self-sufficiency in white settlers informs the very concept of nature as it is taught, notably excluding any presence of Indigenous peoples. Cronon points out that the American frontier myth is specifically masculinist and individualistic, and reflects attitudes of wealthy industrial capitalists that view nature as separate from human life. Lowan (2009) also notes the distinctly Western concept of nature separate from humans in contrast to Indigenous beliefs. Tuck et al. (2014) point out how environmental education tends to claim political and cultural neutrality despite being steeped in Euro-centric and settler colonial ideologies. They note that this claim to innocence or ignorance regarding settler identity and the lack of recognition of Indigenous peoples and lands within environmental education is an aspect of the ongoing

violences of settler colonialism.

Multiple approaches have emerged to develop more effective methods of environmental education, and to try to address social, cultural, and political intersections with environmental issues. The following sections briefly discuss the theories of critical place-based education, Land-based education, eco-justice education, and decolonization within environmental education.

Place-based Education

Place-based education is closely aligned with other types of experiential and outdoor education theories in that the main focus is learning through explorations of a specific place, which in place-based education includes natural and human communities (Martusewicz et al., 2021). Gruenewald (2003) states that place-based education is useful in that it provides context for learning that directly relates to the well-being of the communities and places where people live. He also points out that place-based education is not necessarily grounded in any particular pedagogical theory, and is more of a methodology that can be complementary with various theoretical traditions. Tuck et al. (2014) identify place-based education as focused on the natural environment and non-human aspects of place that are not related to social or cultural influences.

Gruenewald (2003) suggests blending critical pedagogies with place-based education in order to challenge dominant cultural and social systems, defining critical pedagogies as social justice-oriented approaches to education that identify and critique systems of oppression within education and society. He suggests that since place-based education tends to focus on rural and ecological contexts, and critical pedagogy tends to focus on urban social contexts, the two would be well balanced, calling it "a critical

pedagogy of place" (p. 3). Gruenewald proposes that a critical pedagogy of place recognizes experiences of human connections with others and with nature, and facilitates a responsibility for future generations and the natural world.

Tuck and McKenzie (2015) follow similar lines of logic to conceive of "critical place inquiry" (p. 18), which is applied as a research theory and method. Critical place inquiry is research that is concerned with the connections between the social context and physical environment of a place, and oriented towards action to address issues like settler colonialism and environmental degradation. Tuck and McKenzie extend this theory to inform Indigenous critical place inquiry, attempting to identify Indigenous methods of research and social science, noting the essential relationships to land that Indigenous communities hold. By identifying Indigenous methods of research, the authors aim to decenter settler colonialism within academic research.

Streelasky (2020) presents a study based in critical pedagogy of place in which she collaborates with a local Indigenous educator and community to provide place-based learning integrated with traditional teachings of local Coast Salish Indigenous knowledge for kindergarten and first grade students. Through a variety of experiential outdoor learning approaches, students developed whole-hearted relationships with their local environment. Streelasky concludes that students received a deeper and more comprehensive learning experience with Indigenous perspectives and ways of knowing represented, and were able to participate in early learning conversations about the Canadian project of reconciliation.

Land Education

The theory of Land-based education or Land education cultivates Indigenous

relationships to land and critiques theories and education that justify settler occupation of

Indigenous lands (Tuck et al., 2014). Calderón (2014a) relates Land education to

place-based education in the focus on meaningful whole-hearted relationships to place,

framing Land education as an extension of place-based education that specifically centers

Indigenous knowledge and relationships, and challenges settler colonialism in education.

She points out the importance of making settler colonialism in curriculum visible and

explicit in education in order to appropriately reckon with it. Wildcat et al. (2014) regard

Land-based education as a direct challenge to settler colonial attempts at Indigenous

erasure. They frame Indigenous education as directly related to and intertwined with

Land in methodology and philosophy, and call for the continued revitalization of

Indigenous teachings and ways of life, rejecting any interest in reconciliation with settler

institutions.

Tuck et al. (2014) indicate that the capitalization of *Land* in Land education

implies the spiritual significance and interdependent relationships with the natural world

in Indigenous philosophies that go beyond a material understanding of physical space

implied with the lowercase *land*. They note that Land education centers Indigenous

knowledge and methods of learning, including Indigenous languages and nuanced

Indigenous identities, teaching skills and ways of knowing that are invested in ensuring

the futures of Indigenous people and culture. Calderón (2014a) compares Land education

with place-based education, noting shared hands-on approaches and community-based

engagement, but critiquing the need for place-based education to embrace decolonizing

goals and historical context. She states that mainstream environmental and place-based

educational goals of sustainability cannot be achieved unless the people Indigenous to

place are centered in those conversations, as Indigenous knowledge is often the most relevant and viable knowledge of place-based sustainability.

Tuck et al. (2014) discuss the merits of Land education in terms of holistic and deep learning for both Indigenous and non-Indigenous learners; however they warn against skipping past accurate and contextualized histories of settler colonialism and the process of decolonization, lest educators fall into the settler habit of trying to replace Indigenous people by attempting to "become Native" at the expense of Indigenous people and land. Wildcat et al. (2014) also warn against relying on tropes or stereotyped ideas of traditional knowledge to inform Land education, as Indigenous knowledge continues to change and adapt and may include modern technologies as a part of sustaining healing relationships with nature.

Eco-justice Education

Eco-justice education offers another critical framework for educational theory and practice that includes human cultural and ecological relationships, systems of power and oppression, environmental justice, historically marginalized communities, and methods of sustainability in order to educate and motivate learners towards effecting change (Gruenewald, 2003). Both Gruenewald and Martusewicz et al. (2021) argue that the mainstream approach to environmental issues does not adequately recognize the root causes of environmental degradation, which can be traced back to social inequities and imbalances of power. According to Martusewicz et al., eco-justice education points to cultural patterns of thought that place people of color, women and gender non-conforming people, poor people, disabled people, and the natural world as less worthy or inferior as driving forces behind the unsustainable systems that the

industrialized world depends on. The authors recognize hyper-consumption, commodification, individualism, and systems of hierarchy and oppression as fundamentally destructive for humans and the environment.

"The Principles of Environmental Justice" (People of Color Environmental Leadership Summit, 1991) recognize the conjunction and interdependence of social justice and environmental issues, calling for action to protect the rights and sovereignty of oppressed people and protection from pollutants and ecological devastation. They make a particular point regarding the rights and sovereignty of Native Peoples within the United States. Eco-justice education also recognizes the influence of Indigenous education as a model with common values regarding the interconnectedness of social, cultural, and ecological systems and an interest in challenging mainstream education and assumptions (Martusewicz et al., 2021).

Decolonization in Environmental Education

Decolonization is a broad term that applies to efforts to center and benefit Indigenous knowledge and communities as well as disrupt settler colonial systems (Irlbacher-Fox, 2014; Madden, 2019; Tuck & Yang, 2012). Madden (2019) breaks decolonization down into two goals: deconstruction of settler colonial systems that perpetuate inequities, and reconstruction, which honors and supports Indigenous forms of resistance to colonialism, as well as Indigenous systems of knowledge and ways of life. Irlbacher-Fox (2014) posits that the act of making space for Indigenous knowledge is in itself a challenge to the status quo, though she also notes that cases of incorporation of Indigenous knowledge into mainstream settler institutions have been largely ineffective, with inadequate tools and implementation, especially when non-Indigenous educators are

tasked with teaching about Indigenous culture.

Tuck and Yang (2012) critique the rise of the concept of decolonization in education as it has come to represent an ambiguous metaphor for challenging settler perspectives. While other types of social justice and critical racial educational methods are important and valid, Tuck and Yang maintain that they do not equate to decolonization. They acknowledge the basis of the American "settler-native-slave" social structure as intimately connected and based in settler colonialism, with the intersecting identities and goals of different groups of oppressed peoples at times working against one another's goals of liberation. There are certainly merits and highly compelling conversations regarding the history, cultural knowledge, and sustainability practices of Black American communities, as well as other communities of color and immigrant communities in the United States. Though many groups seek to unsettle settler colonial systems, Tuck and Yang maintain that the term *decolonization* only accurately applies to Indigenous frameworks and struggles for sovereignty.

In recognizing the difficult and complex nature of decolonization within education, Madden (2019) proposes the use of the term *de/colonization*, noting that decolonization may not always be able to act in direct opposition to colonialism. Instead, she calls for consistent examination of setter structures within education, acknowledging that a binary understanding of colonialism and decolonization may not always fit a realistic model. While Wildcat et al. (2014) deny interest in reconciliation or inclusion, and instead focus on decolonization as a means of Indigenous resurgence and settler reckoning, other scholars like Madden (2019) consider reformed relationships between settlers and Indigenous people and land as significant and realistic progress towards goals

of decolonization. Snelgrove et al. (2014) make the point that any form of education or solidarity risks perpetuating settler colonialism unless there is an intentional focus on contextual settler colonial systems with Indigenous perspectives fully centered. Wildcat et al. (2014) suggest that non-Indigenous educators and institutions need to engage in a self-reckoning process to address internalized privilege and invest in forms of co-resistance against settler colonialism in order to achieve respectful and equitable relationships of settler and Indigenous co-existence.

Within environmental education specifically, many methodologies meant to connect learners with nature in effect sustain settler claims of ownership and erasure of Indigenous peoples (Kulago et al., 2021). Beckford et al. (2010) argue that Indigenous models of sustainable and reciprocal relationships with the natural world offer important lessons for non-Indigenous learners. Martusewicz et al. (2021) recognize how much Indigenous education and philosophies influence their concepts of environmental education and eco-justice education, viewing Indigenous environmental perspectives as the oldest ongoing traditions of environmental education. Smith and Sharp (2012) point to Indigenous knowledges informing and complimenting Western understandings of climate change. Beckford et al. (2010) suggest that Indigenous models incorporated into mainstream environmental education could help to address the damages settler education has committed towards Indigenous communities, and Barnhardt and Kawagley (2005) support centering Indigenous knowledge in order to shift society towards behaviors and attitudes that would secure a more sustainable future for the planet.

While Palmer and Neal (1994) declare the intention of environmental education to sustain the planet and natural systems for future generations of all people, critiques of

Western mainstream education as perpetuating environmentally and socially destructive settler colonial philosophies cannot be ignored. Calls for decolonization of environmental education curriculum vary in methodology, from incorporation of Indigenous knowledge into mainstream education (Beckford et al., 2010), to centering Indigenous teachings and communities (Barnhardt & Kawagley, 2005), to dismantling settler systems and institutions (Wildcat et al., 2014). Snelgrove et al. (2014) and Tuck and Yang (2012) make the critical point that any move towards decolonization needs to be fulfilled with meaningful action. It is not enough to theorize inclusion and pedagogical change; the physical structures of educational institutions and relationships with land need to be critically assessed and substantially revised in order to dismantle settler colonialism.

Social Justice Education

While the topic of social justice education does not specifically focus on Indigenous issues, it does offer an important orientation towards inspiring action for social change in educators and learners. Hackman (2005) identifies social justice as both a process and a goal, supporting students and teachers in developing active, empowered, and critical learning environments. She highlights that social justice education pays particular attention to systems of power within historical contexts, and "encourages students to critically examine oppression on institutional, cultural, and individual levels in search of opportunities for social action in the service of social change" (p. 104). Louie (2020) notes how often students and teachers are left with feelings of powerlessness and overwhelm when learning about issues of injustice. He adds that guilt, fear, and lack of solutions can keep learners paralyzed and unsure of how to initiate action towards social change. Social justice education provides a framework to help learners move through

those inhibiting feelings towards positive solutions and action.

When considering restorative justice, Zellerer and Cunneen (2001) speak to the need for new relationships between settler and Indigenous communities that recognize Indigenous sovereignty and self-determination. They point to the fundamental basis of restorative justice, in which there is a reconciliation between an offender and the affected community. This requires particular action on the part of settler societies and individuals to be able to recognize the harm that is being done, and to take action to rectify injustices and restore healthy relationships. Social justice education is a framework that prepares learners to participate in deep learning and take action to address injustices.

Hackman (2005) breaks down effective social justice education into five critical components: content mastery, tools for critical analysis, tools for social change, tools for personal reflection, and an awareness of multicultural group dynamics. Moving from factual historical context through critical analysis of systems of oppression to actionable tools for change and personal self-reflection, Hackman offers practical steps for implementing transformative pedagogies in educational settings. Louie (2020) applies this theory towards teaching Indigenous perspectives, noting that many teachers need to be able to recognize their own internalized unconscious barriers before they can teach critical theory or approach Indigenous teachings. Louie contends that teachers should learn to self-reflectively and critically examine their own biases in order to be able to effectively value and incorporate historically marginalized cultures and perspectives in their teaching, noting that teaching through a lens of pity or saviorism sustains oppressive systems and deprives learners of the complex knowledge contained within non-Western cultures and perspectives. This particularly seems to apply to white and non-Indigenous

educators, or educators established within mainstream colonial education systems. Social justice education challenges teachers and learners within mainstream curriculum to critically assess which voices are being represented and affirmed, and which voices remain marginalized, as well as the social and historical context which has led to those paradigms.

Conclusion

In reviewing the literature regarding settler colonialism in education, Indigenous knowledge and education, and models of critical and transformative pedagogies, it is clear that there are major omissions in mainstream environmental education. The ongoing systems of settler colonialism in the United States require explicit examination and meaningful action in order to move towards restorative justice. There are multiple proposed solutions aimed at healing and reconstructing what and how we teach in order to ensure the futurity of Indigenous peoples and a sustainable world. Models of environmental education like critical place-based education, Land education, and eco-justice education offer opportunities to critically examine sociopolitical contexts in addition to providing meaningful experiential learning. Social justice education empowers learners to take purposeful action to address injustices. When applied effectively, contextually grounded social justice learning in an environmental education setting can provide learners a more complex, nuanced, and deeper understanding of place and land. Centering Indigenous knowledge and educators ensures that environmental learning is holistic, culturally relevant, and invested in sustaining Indigenous communities, movements, and ways of life. It does, however, require considerable effort and a willingness to reconsider assumptions that many educators hold regarding the

validity and superiority of established systems of settler colonialism.

In the next chapter, a resource guide project to support professional development towards transformative social justice education and revitalization of Indigenous epistemologies is outlined and explored.

CHAPTER THREE

Project Description

Introduction

This chapter describes the project intended to help environmental educators increase their awareness of and connections with Indigenous communities, scholars, and resources so that they can ethically integrate Indigenous voices and perspectives into contextualized teaching. The first chapter introduced my own background and positionality as a white educator and the personal deficits experienced from a strictly Euro-centric settler colonial education. The second chapter explored the literature related to the research question: *How can environmental educators integrate and center Indigenous knowledge in curriculum as a primary source and model for sustainability, understanding natural systems, and developing whole-hearted relationships with nature in order to deepen student learning, create inclusive and contextual learning environments, and to work towards restorative justice?*

The project is designed as a resource guide in the form of a website intended for use by non-Indigenous environmental educators interested in Indigenous knowledge and progressive teaching for social justice. By formatting the resource guide as a publicly accessible website it is intended to be accessible for teachers in a wide range of educational settings to be able to reflect on their own understanding and move towards a philosophy and practice of teaching that supports Indigenous resurgence and transformative learning. The project reflects a synthesis of the perspectives and learning I have received from Indigenous teachers and scholars through workshops, resources, and literature review. While the project is presented through the lens of myself, a white

educator, for the utilization of other non-Indigenous educators, all of the resources within the project are primarily authored and facilitated by Indigenous educators and scholars.

The complex and nuanced nature of developing appropriate, respectful, non-exploitative relationships between settler and Indigenous communities does not lead to any definitive answers or solutions within this project. As Cannon (2012) notes, there is no one correct approach to anti-oppressive education. Within different contexts, some approaches may be oppressive and anti-oppressive, or simultaneously both (Cannon, 2012). There is a vast spectrum of opinions and perspectives within the many Indigenous nations and communities of North America, and non-Indigenous educators will need to connect with local Indigenous peoples to determine the best ways to support those communities and the land, and to develop educational relationships.

The project heavily features Dakota and Anishinaabe resources and is primarily intended for use by Minnesota educators due to the locality of the project author on land now called Minnesota, in the Great Lakes region of North America. The resource guide is by no means exhaustive, as there are countless resources related to specific Indigneous nations and cultural traditions, and Indigenous scholarship continues to grow and adapt in relation to the changing world. Rather, this resource guide is intended to help non-Indigenous environmental educators find a starting point for critical self-reflection and grounded approaches to culturally and historically contextualized environmental teaching and learning.

Project Overview

The project is a resource guide website for non-Indigenous environmental educators that includes guiding philosophies for decolonizing curriculum and centering

Indigenous perspectives. Many Indigenous scholars cite the need for Indigenous voices and perspectives to be centered in education in order to move towards a process of decolonization, reconciliation, and Indigenous resurgence (Irlbacher-Fox, 2014; Korteweg & Fiddler, 2018); however Indigenous sovereignty over the narratives and teachings shared needs to be maintained and prioritized (Tuck & Gaztambide-Fernández, 2013). In order for non-Indigenous educators to be able to guide students towards critical understanding of the history and context of land in environmental education, they must first investigate their own identity and assumptions within settler colonial society and education (Cannon, 2012; Irlbacher-Fox, 2014). Cannon (2012) asserts that non-Indigenous allyship in education requires an understanding of colonialism as an issue of concern and responsibility for all members of society. He suggests a process of self-interrogation and collaborative approaches between diverse communities in addition to incorporating Indigenous voices into teacher training and curricula. Irlbacher-Fox (2014) builds on this idea, noting that a process of self-decolonization and refusal of settler privileges is required to work in solidarity with Indigenous peoples.

The resource guide utilizes Hackman's "Five Essential Components for Social Justice Education" (2005) as a framework, which consist of: content mastery, tools for critical analysis, tools for social change, tools for personal reflection, and an awareness of multicultural group dynamics. Sections move through tools for educator self-reflection and critical analysis to resources for factual, contextualized content created exclusively by Indigenous authors.

The landing page of the website introduces the topic and the rationale for educators to engage with the ideas of centering Indigenous perspectives and

decolonization in environmental education. It outlines the intended use for the resource guide, and suggests ways in which educators can utilize the website.

The professional development page of the website offers exercises for critical self-reflection and understanding how racist, settler colonialist ideologies persist within mainstream environmental education institutions and models of teaching. Annotated resources allow readers to choose the most appropriate tools to further investigate internal biases and develop a personal path towards self-decolonization in order to facilitate similar critical and transformative learning experiences for students. The professional development page also offers resources for educators regarding place-specific Indigenous knowledge, philosophies, and practices, as well as guidance on developing healthy and reciprocal settler-Indigenous relationships and appropriately presenting Indigenous perspectives with students. Factual information from specified Indigenous sources can help to counter dominant stereotypical ideas about Indigenous cultures and help teachers feel more confident including Indigenous content in their curriculum, rather than skipping it entirely out of fear of misrepresentation. Louie (2020) points out the purpose of social justice education in helping teachers and students to work through initial overwhelm and resist inaction, and the importance of providing practical application for teachers.

The remaining pages of the website offer practical classroom and curriculum resources organized by student age and grade level. These pages are labeled for teachers of Pre-K through 2nd Grade, 3rd through 5th Grade, 6th through 8th Grade, and 9th through 12th Grade. The resources listed on each page are appropriate for use with the respective grade levels. Resources intended for classroom or field use with students are exclusively authored by Indigenous scholars and educators. These resources include

books that could be read aloud to classes or assigned as readings to be discussed in class.

They also include potential field trip experiences and Indigenous organizations that offer

educational programming or curriculum plans. Annotations for each resource include

suggestions for use in the field or classroom.

The goal of this project is to assist in moving mainstream environmental

education programs towards regularly including and centering Indigenous voices and

perspectives by reaching individual educators. Many educators and organizations have

already begun to consider assessing and making appropriate changes to their curriculum,

though the change is often incrementally slow and sometimes misguided in the way it is

applied, with common misrepresentations of Indigenous cultures, and non-Indigneous

authors and sources taking priority over local Indigenous ones. As a working educator in

the field of environmental education in Minnesota, I hope to see a stronger understanding

and intentional teaching regarding Indigenous ways of knowing from fellow educators

and prominent organizations.

Assessment

While the goal of shifting the field of environmental education towards models

that center Indigenous ways of knowing is difficult one to numerically assess without

undertaking a large scale research analysis, it is something that I will be anecdotally

taking note of, and will continue personally working towards in my own career path and

teaching. On a smaller scale, the feedback from educators who access the resource guide

is an important way to assess the effectiveness of the website on the attitudes, knowledge,

and plans to utilize the resources of individual educators. If the website is effective in

encouraging and preparing educators to center Indigenous perspectives in their teaching, I

believe that we will begin to see an overall tangible shift over time towards more contextualized and equitable programs and teaching.

An online survey is included on the feedback page on the website in order to assess readers' use and engagement with the resources listed. The survey asks readers for their locality, the type of educational setting they teach in, and the age of their students. It asks which resources on the website they accessed and asks readers to rate how likely they are to use them in their teaching, as well as the level of new knowledge gained through their use of the resource guide on a provided scale. These questions will help to assess the level of relevance and applicability of the sources available on the website. Readers also have the opportunity to provide ongoing feedback for improvement or updates to the resource guide in the survey.

Setting

In an effort to make this work as accessible and wide-reaching as possible, the website is intended to be used by individual educators in both formal and informal contexts as a reference and starting point for anti-oppressive and decolonial teaching. While professional development is often designed to be experiential and institution led, challenges of political pressures, as well as time and funding constraints, make it difficult and unlikely for Indigenous-centered professional development to be prioritized within mainstream schools or nature learning facilities. The target audience is non-Indigenous educators who have an interest in Indigenous environmental education, but may be unsure about how to approach or implement it. While it could be shared within an organization or group, the resource guide is designed to be accessible to anyone interested.

Cranton and King (2003) suggest that professional development is an opportunity for educators to practice self-reflections and develop new perspectives and practices through transformative learning. Knowing how much time and responsibility is demanded of educators in their daily work, the resource guide is designed to support transformative learning on an individual timeline. It is not necessary to be read chronologically; readers can skip to sections as needed and use referenced resources as appropriate to their own learning and teaching.

Timeline

The final resource guide website was completed in April 2022. Resource collection, organization, and annotation began in January 2022. The first month was spent selecting a hosting site to design the website and compiling appropriate resources for classroom or field teaching. The second and third month consisted of a process of annotating all resources for practical use, as well as creating a written guide for ethics, use, and choice of resources, including critical analysis and self-reflection tools for educators. The final month was spent editing and formatting the resource guide document and troubleshooting technical issues. The resource guide will remain accessible to the public for as long as it is relevant and useful for educators. As an online document, it may be edited or altered in the future pending new information, resources, or feedback.

Conclusion

The project is designed as a resource guide for non-Indigenous environmental educators seeking to critically examine their own role in settler colonial systems and engage in co-resistance and Indigenous resurgence by centering Indigenous voices in their teaching. Using transformative learning and social justice education frameworks,

this resource guide offers self-reflective practices and resources for critical analysis and Indigenous perspectives. While the resource guide offers starting points for non-Indigenous educators to move towards concepts of decolonization, there are no conclusive solutions provided. Readers are encouraged to grapple with sometimes conflicting viewpoints and perspectives in order to challenge colonial narratives and assumptions, and to invest in the resurgence of Indigenous cultures and communities.

The following chapter provides a reflection on the creation of this project, including challenges and new learning found in the process. Chapter Four also assesses potential limitations and implications of the project within a larger audience.

CHAPTER FOUR

Conclusion

Introduction

This chapter is a reflection on the creation process of this capstone paper and the resource guide project that was described in the previous chapter. I will reflect on new learning drawn from sources discussed in the literature review, as well as insight gained through the process of organizing and curating resources for the website. I will also explore potential implications of the project, including hopes and suggestions for future actions that other researchers or organizations could take to further the impact of this work. Along with that, I will include perceived limitations of the project I completed in the effort to answer the research question: *How can environmental educators integrate and center Indigenous knowledge in curriculum as a primary source and model for sustainability, understanding natural systems, and developing whole-hearted relationships with nature in order to deepen student learning, create inclusive and contextual learning environments, and to work towards restorative justice?* Finally, I will consider how the project contributes to the field of environmental education by empowering educators to center Indigenous perspectives and address systems of settler colonialism in their teaching practices and learning environments.

Major Learnings

As I initially approached the literature concerning the topics of decolonization in education and Indigenous environmental education, I perhaps somewhat naively hoped to find easily applicable research with repeatable steps, and clean, concise solutions and conclusions. Instead, in the volume of literature I worked my way through, I feel as if I

barely dipped my toes into the depths of the complexity, nuance, and hotly debated terms and ideas that accompany ongoing movements of decolonization and Indigenous resurgence. What I ultimately found is that there are no simple answers, and attempts to construct one feel inappropriate and contrived, especially from the perspective of white settlers. There are so many ways that settler colonialism has shaped education, and it is so deeply embedded into mainstream cultural expectations, that no one solution could ever adequately address it.

I did find a few research articles describing varying degrees of successful integration of Indigenous ways of knowing into mainstream curriculum or programs, for instance Barnhardt and Kawagley (2005), Lowan (2009), and Nesterova (2020). However the harsh critiques of Calderón (2014b) and Tuck and Yang (2012) prompted me to question whether that approach was even an appropriate or effective solution. Tuck and Yang (2012) explicitly describe how many attempts to decenter settler colonialism with goals of social justice in effect ultimately cater more towards assuaging white settler guilt than creating substantive structural change.

With this understanding, creating a project to answer my research question *How can environmental educators integrate and center Indigenous knowledge in curriculum as a primary source and model for sustainability, understanding natural systems, and developing whole-hearted relationships with nature in order to deepen student learning, create inclusive and contextual learning environments, and to work towards restorative justice?* felt simultaneously futile and inadequate to address larger issues of decolonization and settler colonialism. I recognized in myself a desire to ease the discomfort I feel when recognizing how Indigenous people and narratives have been

erased, while seeking to use Indigenous ways of knowing to effectively sustain settler systems without the need for drastic change. While the personal/professional development aspect of the project may successfully challenge some individual ideas about settler innocence and appropriation, I am not sure that the teaching resources go far enough to unsettle the firm hold of settler colonialism in educational settings.

The radical structural changes that I now understand to be necessary are unfortunately not something that I realistically expect to see within mainstream educational institutions or programming. The reality is that educational institutions most often implement change incrementally and at a slow pace, sometimes even moving backwards or sideways before approaching anything that looks like progress to those outside of the decision making process. As an individual with little structural power, my hope is that reaching other individual educators and increasing internal pressure for appropriate representation and culturally competent and contextualized lessons and learning materials will in time lead to necessary long-term structural changes.

The project I created is only a limited response and a very small piece of what I have come to understand as the necessary process of decolonization. My personal understanding of the current of social change is that shifting pressure from all points of the spectrum is required to create movement. By that I mean that people on the radical end of the spectrum are needed to shape opinions and strategies, while people in the more moderate middle of the spectrum may be best able to influence those on the conservative end of the spectrum, who haven't yet considered the desired change. My project aims to reach those who may be open to reconsidering settler colonial narratives, but have not yet been called to take action or reckon with their own beliefs and biases. I do think this is an

integral part of shifting larger settler colonial systems and narratives; however, it is certainly not the whole picture.

The project reflects my own learning, and attempts to usher other educators along a process similar to my own of self-reflection and consideration of perspectives outside of a familiar comfort zone. Though authors like Tuck and Yang (2012) stress that decolonization is not for or about white people, a majority of educators in the United States are white (Schaeffer, 2021), and so it seems imperative to find a way to reach and influence white educators. Though the primary audience for the project are non-Indigenous educators, the intention is ultimately to make more space for Indigenous voices, perspectives, and narratives, and to prioritize Indigenous students and teachers, as well as other students and teachers of color. While approaching the project of centering Indigenous ways of knowing by targeting non-Indigenous educators seems counterintuitive, I believe that responsibility for the systematic lack of representation lies with the culture of settler colonialism and white supremacy, which, to put it bluntly, is a white people problem. Indigenous people are not responsible for the oppressions they face; it is essential that non-Indigenous people who hold positions of power and influence in our society are actively engaged in creating solutions to account for the history of systematic oppression that has led to cultural and environmental degradation.

Implications and Limitations

The state of Minnesota currently has K-12 academic standards that require learning about American Indian history and culture in the subject areas of social studies, language arts, science, and the arts. While Minnesota standards are progressive in comparison to many other states, there remains room for improvement in most

classrooms and outdoor learning environments that I have experienced when it comes to offering learning that is grounded and contextualized in the Indigenous history and cultural significance of land and place. My hope is that in time, not only will Indigenous contributions to subject areas be readily acknowledged, but that educators will be prepared to have open and critical conversations about how historical and cultural context shapes land and place.

Informal environmental education programs are not necessarily bound to the same academic standards that formal classrooms are, and this is where I hope to see the most growth in the areas of cultural competency and restorative practices. Many informal environmental education programs and institutions teach about the environment through relationships with land and the outdoors. Though they may be limited by dependence on funding and donors with specific viewpoints, informal programs may also have the benefit of more flexible program development. Programs that feature outdoor place-based learning in particular would benefit from placing emphasis on Indigenous perspectives and culture by hiring Indigenous educators or consultants for program development, or partnering with local Indigenous organizations. I hope to see more informal programs and institutions commit to centering Indigenous perspectives and developing working relationships with local Indigenous communities and organizations.

Developing relationships and partnerships is one area in which my project is limited. While the resource guide offers many sources of Indigenous voices like books, videos, lesson plans, and websites, the critical piece that is missing is relationships with Indigenous people. This may in fact be the most important thing that educators and organizations can do; however, it is not something that I was able to create through the

chosen format of my project. As I previously acknowledged, my project as it stands alone is an incomplete guide for centering Indigenous voices in environmental educational settings. While it is suitable as a starting point for thoughtful assessment and development of curricula, educators and organizations will need to take it upon themselves to develop comprehensive changes in ways that both suit their students and their educational setting.

The other main limitation to my project is that it relies on self-motivation and accountability on an individual level. Beyond personal interest or beliefs, there is little incentive to convince readers to engage with the materials in the resource guide or to apply them in their educational setting. Though my hope is that reaching individuals will support long-term overall growth in the field of environmental education, it is difficult to determine if that will be effective at all.

In the future, a more effective project might be to assist in the development of a program in collaboration with an existing local Indigenous organization to offer Indigenous-centered environmental education in a specific and practical setting. Multiple Indigenous-led environmental organizations and programs currently operate in the Twin Cities, so perhaps assisting to expand established programs to other areas in the state where there is less availability could be beneficial. I would also like to see more future collaborations between established mainstream environmental education organizations and Indigenous communities and educators in order to develop their programs to better represent Indigenous perspectives.

Summary

The resource guide is presented as a finished product for the purpose of submitting a complete capstone; however, I do intend to continue updating the website in the future as I receive feedback and suggestions from readers. My hope is that my transparency as the author of the site will encourage open conversations and critique to allow me to continue to grow in my own learning on the subject, and I will in turn share that learning to the best of my ability.

The field of environmental education continues to grow in prominence and relevance in the United States due to greater social awareness of climate change, as well as awareness of the health and academic benefits of time spent outdoors. However, environmental education is not immune to the issues and disparities found in other fields of education and society at large. In order to best serve our students and communities, we need to be able to educate and facilitate relationships in ways that build our students' capacity to make whole-hearted sustainable choices. Successful environmental education needs to be more than students learning scientific facts; we need students who are able to connect with their own environment, and use critical processes and contextualized knowledge to build systems that are socially and ecologically equitable and sustainable.

By encouraging educators to engage in critical reflection and assessment of the ways in which settler colonialism informs their teaching, I hope to activate initial processes that may in time lead to better ways of learning and teaching about our environment. While my project instigates beginning steps only, it is part of a larger movement that the field of environmental education has the potential to make. If we, as educators, intend to make meaningful impacts in the way that our culture and society

interact with the natural world, we need to redefine how we are teaching our students to relate to the natural systems they are a part of. Land and place hold meaning and history beyond the Western scientific ways of knowing. Indigenous cultures have developed through centuries of living in sustainable relationship with the land and beings that make up our living systems. Disregarding this essential knowledge and the people that continue to hold and maintain it is a mistake that has cost our planet dearly. In order to honor our living planet, and the colonial actions that have brought about dire conditions in our ecosystems and social systems, we need to teach in a way that explicitly addresses the root of these issues and supports students in taking meaningful action to ignite change.

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