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## Educating for Indigenous Futurities: Applying Collective Continuance Theory in Teacher Preparation Education

STEPHANY RUNNINGHAWK JOHNSON & MICHELLE M. JACOB

### Introduction

In the United States, as well as elsewhere around the globe, K-12 classrooms are important sites for anti-colonial and Indigenous critiques of the settler nation, neoliberalism, and globalization. All of these lived realities undermine Indigenous futurities while simultaneously fueling climate change and perpetuating settler-colonial violence. Because Indigenous children predominantly attend public schools, we have chosen Western education systems as places to contribute to the ongoing work of Indigenous survivance (Sabzalian; Vizenor). We have also chosen to use the term 'Indigenous' as we feel that it directly connects people with their homelands, with their more-than-human relatives, and with the responsibilities that we have to each other and our places—and that these connections and responsibilities are an important part of the work we are doing. As Indigenous peoples, and in our work as Indigenous teacher educators, we seek to be good ancestors, to teach in ways that provide connection to Land and our more-than-human relatives, and to promote the collective continuance of Indigenous peoples as a method of broadening and supporting Indigenous futurities for our future generations.

We—Indigenous peoples and Indigenous teachers—are contemporary and hopeful; we persevere, and we change and adapt using our cultural knowledges. An integral part of the knowledge that is currently needed in our schools is the concept of connection. Connection between people in communities as well as peoples across the globe, but also connection with our more-than-human relatives, the Land, our places,

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the air and water. This is important because as Indigenous people, we understand our Land differently than mainstream understandings of land within settler colonial institutions. As Robin Wall Kimmerer writes, "in the settler mind, land was property, real estate, capital, or natural resources. But to our people, it was everything: identity, the connection to our ancestors, the home of our nonhuman kinfolk, our pharmacy, our library, the source of all that sustained us" (*Braiding Sweetgrass* 17). Tuck and Gaztambide-Fernández agree with Kimmerer, and strengthen her argument when they write that for "settlers to live on and profit from land, they must eliminate Indigenous peoples and extinguish their historical, epistemological, philosophical, moral and political claims to land. Land, in being settled, becomes property" ("Curriculum, Replacement, and Settler Futurity" 74).

Indigenous teachers can challenge misguided conceptions of, and relations with, Land by supporting their students' knowledge of the Land as a sacred relation, and this can open possibilities of multi-level changes throughout society that make it possible to mitigate climate change.

As we teach, live, work, and learn within and against the backdrop of settler colonialism, it is important to remember that it is "the specific formation of colonialism in which the colonizer comes to stay, making himself the sovereign, and the arbiter of citizenship, civility, and knowing" (Tuck and Gaztambide-Fernández 73). This means that as Indigenous teachers, both at the university and K-12 levels, we must continue to recognize and resist multiple forms of the violence brought about by settler colonialism. This includes the way we consider our connections and responsibilities to one another as well as how we think about Land as our relative to whom we have responsibilities. The loss of this connection with Land is a major contributor to the global climate crisis we currently face. With settler colonialism we must also keep in mind that the "violence of invasion is not contained to first contact or the unfortunate

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birthpangs of a new nation, but is reasserted each day of occupation” (Tuck and Gaztambide-Fernández 73). In working with future teachers, Indigenous teachers, we believe that we can broaden and strengthen the work of decolonization and Indigenization and by doing so, have a positive effect on our future generations of Indigenous youth and our/their relationship with Land and climate.

In the process of recognizing and resisting settler colonialism at work within our schools and our classrooms, “critical examinations of colonialism will help educators consider alternatives to colonizing ways focusing on strategies of resistance and survivance through writing and cultural production” (Pewewardy, Lees, and Clark-Shim 49); Indigenous teachers are in a position to do this work most effectively with their Indigenous students. We, as university educators, must be critical of the colonial institutions within which we work, and we must provide future Indigenous teachers with an example of what this can look like. Violence in the form of “forced assimilation of Indigenous peoples through public schooling began a clear pattern of government efforts to enact school policies that advanced efforts of settler colonialism” (Lees et al. 5), which continues in the present. Public schools are still in the process of advancing the ideologies and the violence of settler colonialism. By teaching in Indigenous ways and with Indigenous knowledges, “we bring settler colonialism to the center of neoliberal critiques to contend with its aftermath, which permeates all we do in school”(Lees et al. 5). Practicing resistance and survivance through centering Indigenous teachers and Indigenous epistemologies, ontologies, and axiologies “is situated within broader intergenerational processes of Indigenous persistence, resilience, and community agency committed to strengthening the next generation of nation builders” (Anthony-Stevens et al. 3).

We must also remember and honor that Indigenous ways of knowing are interdisciplinary. Humans are not separate from the natural world, so why would we

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make distinctions between school subjects? "We are collectively looking for the right and responsible ways to weave TEK (Traditional Ecological Knowledge) into our education, research, and practice, trying to find a path through a profoundly new educational landscape for mainstream universities" (Kimmerer, "Searching for Synergy" 318). This path includes both the humanities and the sciences connecting and intertwining through culture and stories, and Indigenous teachers can further this work with their students and communities. "Indigenous thinkers for their millenia of engagement with sentient environments, with cosmologies that enmesh people into complex relationships between themselves and all relations, and with climates and atmospheres as important points of organization and action" (Todd 6-7) show us what this path can look like. This way of thinking, of knowing and being in the world, is crucial for our Indigenous students, and it is also important for all students and peoples. We can use this knowledge to teach and to combat climate change—for collective continuance.

We, as Indigenous professors, use critical Indigenous pedagogical frameworks with our students because they are "central to the organization of curriculum and instruction methods classes, student teaching practica, and other coursework or programmatic experiences" (Kulago 240). We do this because within "these frameworks, there are similar components that include the disruption of curricular materials/resources so that truthful histories and multiple perspectives are included: the centering and valuing of Indigenous knowledge systems and languages, and the goals of nation building and strengthening of Indigenous communities and families" (Kulago 240). We also do this to show our future teachers a way forward in their work that supports their, and their students, Indigenous futures. This critical Indigenous consciousness allows these future teachers to "acknowledge, respect, and embrace the role they would hold as advocates, nation builders, and leaders in their communities

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with their continued service to Indigenous communities and people” (Kulago 242). We hope to provide examples of, and support for, our future teachers to “critically examine curriculum, instructional methods and other educational practices, call out assimilative/colonizing aspects, and forefront Indigenous perspectives and knowledge systems” (Kulago 242). Indigenous pedagogical frameworks allow us as teachers to decolonize and Indigenize our educational practices, to support Indigenous knowledges and worldviews, to practice collective continuance as well as being good ancestors.

As Hollie Kulago points out, “in Indigenous teacher education, we are committed to Indigenous futurity but must work through educational programs committed to settler futurity.” (“In the Business of Futurity” 243). To be clear, settler futurities are not the same as Indigenous futurities. But what do we mean by ‘futurities’? They are not just a set of ideas or concepts about what the future may hold, but instead refer to “styles of thinking about the future, the types of practices that give content to a certain future, and the logics behind how present actions are legitimized or guided by specific futures” (Kulago 243). Indigenous futurities are a way for Indigenous peoples to imagine and then implement a future that is meant for them and their children, that honors their ancestors and their ways of knowing and being, and that respects the connections to and responsibilities for the Land and more-than-human relatives with whom Indigenous peoples have been in relation with since time immemorial. As Megan Bang writes “a fundamental aspect of seeing anew is in cultivating our abilities to see remembered places and newly made places while we learn to move and be differently in the world, collectively” (441). Indigenous teachers working with Indigenous students can and do make possible the inclusion of Indigenous futurities within public schooling institutions, in fact, having “community-based Indigenous educators to serve Indigenous youth is paramount for helping Tribal

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nations and their citizens to build both a strong and present future" (Anthony-Stevens et al. 19). As Kulago writes "having a critical Indigenous consciousness can challenge the structure of settler colonialism and promote resistance and survival...education through and with the goals of cultivating critical Indigenous consciousness can become a weapon against settler colonialism" (248). By providing future teachers with the skills and the support to be critical Indigenous scholars and teachers, we are helping them to resist settler colonialism and promote Indigenous futurities.

We draw from our experiences as Indigenous university educators, and from the experiences of our students who are training to become elementary and secondary classroom teachers in the US. We do this work in order to show how education can be one way to better understand our ancestral Indigenous teachings. These teachings "can create a synergy between teacher education and the field of practice and support educators developing consciousness... as they commit to decolonization and Indigenous futurities" (Lees et al. 15). By better understanding these teachings, we aim to deepen our, our students', and their students' connection to our/their Indigenous identities and knowledges. By connecting deeply with our Indigenous identities and knowledges, we become better ancestors, better teachers, and better learners, more connected to our places and Land, more cognizant of our relationships and responsibilities, stronger in our efforts to promote collective continuance, and champions of Indigenous futurities.

### **Climate Change, the Anthropocene, and Settler-Colonial Violence**

Our world is currently experiencing a crisis: climate change caused by humans; caused by humans' lack of connection with place and their more-than-human relatives; caused by humans' loss of recognition of their responsibility to be good ancestors and good relatives; caused by heteropatriarchy, capitalism, and settler-colonialism. Our

Indigenous communities are experiencing climate crises at disproportionately higher rates than whites living in the US, and this is not accidental. Indigenous peoples are experiencing poverty, loss of traditional homelands, rising sea waters caused by warmer temperatures, lack of clean drinking water, and loss of access to traditional foods. These issues are all linked and many are the result of climate change and warmed global temperatures: "As an environmental injustice, settler colonialism is a social process by which at least one society seeks to establish its own collective continuance at the expense of the collective continuance of one or more other societies" (Whyte, "Settler Colonialism" 136). This is happening across the globe today, and we see and feel its presence in our classrooms and communities.

In order to truly address our climate issues, we must name the problems and their origination. Davis and Todd "argue that placing the golden spike at 1610, or from the beginning of the colonial period, names the problem of colonialism as responsible for contemporary environmental crisis" (763). The connections between colonialism, particularly settler-colonialism, and the Anthropocene need to be explicit in order to expose the violence of colonization: "By making the relations between the Anthropocene and colonialism explicit, we are then in a position to understand our current ecological crisis and to take the steps needed to move away from the ecocidal path" (Davis and Todd 763). This then allows for a recognition of Indigenous ways of knowing and being, of the necessity for Indigenous input and governance. This shows a way forward that is hopeful.

Kyle Powys Whyte tells us that "settler colonialism works strategically to undermine Indigenous peoples' social resilience as self-determining collectives" ("Settler Colonialism" 125). However, if we connect the Anthropocene with colonization,

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it draws attention to the violence at its core and calls for the consideration of Indigenous philosophies and processes of Indigenous self-governance as a necessary political corrective, alongside the self-determination of other communities and societies violently impacted by the white supremacist, colonial, and capitalist logics instantiated in the origins of the Anthropocene. (Davis and Todd 763)

In order to address social issues and the current climate crisis, we must acknowledge the violence caused by settler colonialism, and recognize that Indigenous peoples across the globe can be, should be, and are sovereign nations and have continued their relationship with Land and more-than-human relatives through the violence. We know that Indigenous "people have endured the pain of being bystanders to the degradation of their lands, but they never surrendered their caregiving responsibilities. They have continued the ceremonies that honor the land and their connection to it" (Kimmerer, "Searching for Synergy" 319). We can teach these concepts in our schools, and in doing so become better ancestors as well as better caretakers of our Lands.

By recognizing the climate crisis that is currently raging, naming and acknowledging the colonialist causes, and by affirming the inequitable effects of this crisis, we potentially build a foundation for change. With this groundwork laid, it may be possible to begin to move toward a restorative pathway forward. We believe that our future teachers see this possibility and the hope that the students in their classrooms bring to Indigenous communities across the globe and can support collective continuance in their communities by holding and passing on Indigenous knowledges and values to their students.



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## **Collective Continuance and the Importance of Interdisciplinarity to Address Climate Change**

As Indigenous university educators, we assert and affirm the importance of Indigenous educators who are learning to become good ancestors for future generations. We work with future teachers, and part of the work we do with them is to better understand their/our ancestral Indigenous teachings for the purpose of deepening our Indigenous identities and knowledges, which allows these teachers to do the same for the students in their classrooms. This type of work is a vital part of what Whyte calls collective continuance. Collective continuance is “an Indigenous conception of social resilience and self-determination” (“Settler Colonialism” 125) and “refers to a society’s capacity to self-determine how to adapt to change in ways that avoid reasonably preventable harms” (131). Teachers, particularly Indigenous teachers, can be part of this process by supporting and broadening students’ confidence with their Indigenous knowledges and identities. Indigenous peoples reclaiming our/their sacred relationships and responsibilities for caretaking of the Land is an important first step in environmental justice and addressing climate change.

Collective continuance connects the three concepts of: interdependent relationships, systems of responsibilities, and migration (Whyte, “Settler Colonialism” 126). All three of these concepts are foundational in our Indigenous students’ journeys to become teachers in their communities. These concepts are needed more broadly in today’s schools and education, particularly for Indigenous students, and more generally for all students, in that they provide students with a sense of their own identities, the value of their relationships, the need for them to be connected to and responsible for their human relatives, their more-than-human relatives, and their air, waters, Land and place. These connections and relations are more important than ever to understand

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and to honor in the current climate crisis we all face and that these students will have a large part in addressing.

Interdependent relationships are important in thinking about our interactions with, and considering our impact on, not just other humans but also our more-than-human relatives and the Land, air, and water. Whyte explains that the concept of interdependent relationship "includes a sense of identity associated with the environment and a sense of responsibility to care for the environment. There is also no privileging of humans as unique in having agency or intelligence" ("Settler Colonialism" 127). He goes on to state that interdependence "highlights reciprocity or mutuality between humans and the environment as a central feature of existence" (128). We understand, recognize and honor this concept, as do our future teachers. These future teachers take this concept to their students and affirm as well as promote these students sense of responsibility to their relatives and their Land.

Current and future Indigenous teachers have a responsibility, in our cultural teachings, to prioritize relationships and systems of accountability / answerability / responsibilities that differ from settler sensibilities. Terry Cross has led the way in articulating how systems can be structured and led in order to fulfill an Indigenous understanding of respectful relationship building, noting this work should take place "at all levels—the importance of culture, the assessment of cross-cultural relations, vigilance towards the dynamics that result from cultural differences, the expansion of cultural knowledge, and the adaptation of services to meet culturally unique needs" (83). Likewise, Whyte encourages focus to be placed "on the qualities of the responsibilities that have developed over time, which foster interdependence. These qualities include consent, diplomacy, trust, and redundancy" ("Settler Colonialism" 132). Teaching with and for these concepts allows for a different way of learning and growing, and a different way of viewing the world compared to the dominant views in

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settler-state educational systems. As Leilani Sabzalian recommends, teachers who wish to contest colonial discourses in education can “start with place” (130). Daniel Wildcat writes that Indigenous knowledge systems are indeed an important form of ingenuity, as reflected in his term, indigenuity, which he defines as “Earth-based local indigenous deep spatial knowledge” (48). A view that we foster and share with our students holds our more-than-human relatives and our Land and place as just as, if not more important than, our human relatives. Such relational views disrupt the commodification of Land and natural resources that have fueled climate change and are a necessary starting point for mitigating the climate crisis we all currently face, as well as a more sustainable way of life in the future. By providing space for this kind of view and approach in Western education systems, Indigenous teachers can carry this forward with their students, opening up possibilities that have not existed, and in doing so Indigenous teachers are reconnecting and reclaiming our cultural teachings that prioritize the importance of place and relationships. Or as Sabzalian eloquently states, “Places are pedagogical” (199).

As Kimmerer writes, “each person, human or no, is bound to every other in a reciprocal relationship. Just as all beings have a duty to me, I have a duty to them... An integral part of a human’s education is to know those duties and how to perform them” (*Braiding Sweetgrass* 115). As educators, it is our job to support Indigenous students’ knowledges that they are in relationship with, and responsible for, all other beings. It is also our responsibility to teach others about these relationships, to promote with all our students their connection to Land and the environment. Additionally, as humans we have an obligation to “find ways to enter into reciprocity with the more-than-human world. We can do it through gratitude, through ceremony, through land stewardship, science, art, and in everyday acts of practical reverence” (Kimmerer, *Braiding Sweetgrass* 190). Kimmerer gives us ways to bring our responsibility into focus through

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education—and we are in a position within schools to educate young people in ways that promote thinking of our Land and places as our relatives that deserve our respect and our care.

In thinking of how we, as educators and as Indigenous people, can positively affect the current human induced climate crisis, we agree with Kimmerer that "the transition to sustainability must be a cultural one, a shift in the fundamental relationship between people and land, from the dominant materialist mode of exploitation to the indigenous notion of returning the gift; of reciprocity" ("Searching for Synergy" 318). We as university educators, and our students as future K-12 educators, are in a good position to do this beneficial work. We can help our students either return to and/or strengthen their Indigenous knowledges and sense of connection or help them begin to see these connections and to understand that they have a relationship with and responsibility to the Land. This is true of both our Indigenous students as well as our non-Indigenous students. As teachers we can talk about different types of energy, of the climate crisis, of why it exists, and about how to begin to change. We can talk about energy sources, but more importantly about how the Land takes care of us and of how we need to also take care of the Land. As Kimmerer writes,

the wind blows every day, every day the sun shines, every day the waves roll against the shore, and the earth is warm below us. We can understand these renewable sources of energy as given to us, since they are the sources that have powered life on the planet for a long as there has been a planet. We need not destroy the earth to make use of them. (*Braiding Sweetgrass* 187)

Another piece of collective continuance that connects to both our future teachers and the climate crisis is the idea of migration, and the fact that this is a natural

part of our ecosystems, of which humans are just one humble and dependent piece.

Whyte speaks to the idea that:

Migration suggests that relationships of interdependence and systems of responsibility are not grounded on stable or static relationships with the environment. Rather, these relationships arise from contexts of constant change and transformation. A key idea is that relationships that are constantly shifting do not sacrifice the possibility of continuity. (Whyte, "Settler Colonialism" 129)

Our identities as Indigenous people and Indigenous teachers are not static and are grounded in relationship to each other as well as place. That we are thinking of Indigenous knowledges and ways of being in connection with climate crisis and education in a colonialist setting should not be viewed as incongruent, but rather part of this constantly shifting idea of migration which, while changing, are still continuous and connected to our ancestors. Whyte tells us that our identities can and should vary, that our ancestors teach "that was just that person's identity at that place and that time of year. Identity was always shifting" ("Settler Colonialism" 129). As Indigenous educators we, as well as our future teachers, can and should change while at the same time maintaining continuity with our ancestral teachings.

As Indigenous educators, we center collective continuance for Indigenous communities by supporting our future teachers to do good work in US public school systems. We must adapt to our current reality while at the same time maintaining, honoring, and valuing our ancestors, their values and knowledges, and the next generation of teachers whom we have the honor and responsibility of guiding.

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### **Reclaiming Indigenous Ways**

We are not arguing here that the answer is for Indigenous people to simply be included in the Western conversations and Western solutions. While such approaches do contain some benefits regarding raising awareness, which often can lead to heightened visibility of Indigenous struggles and voices, the downside is that the mainstream perspectives continue to stay intact. We are hopeful for a deeper solution: we are arguing for Indigenous self-governance, collective continuance for Indigenous peoples and ways of life, and for Indigenous communities to live in conditions in which we are fully empowered to enact our own solutions to climate change. We agree with Dhillon that "meaningful inclusion within dominant climate science is not merely a matter of increasing Indigenous presence but of reclaiming inclusive Indigenous governance." We are not asking for simple inclusion which does not create substantial change in the current system. Inclusion of Indigenous knowledges and self-governance is crucial as this "decolonizes how climate science is done so that Indigenous peoples can conduct science in ways that further empower their communities" (Dhillon 1-2). We believe that Indigenous teachers, as well as non-Indigenous allies—if they support a centering of Indigenous collective continuance—are critical to this work. Our future teachers are beginning to do this work, and in so doing, providing opportunities for further change in their work with the next generation of students.

Indigenous peoples, including students training to become teachers, have real input in solving the climate crisis we are currently experiencing. By focusing on Indigenous futurities, we are reminded that "we must learn to remember, dream and story anew nature-culture relations—and importantly this issue reminds me to emphasize how those relations are always on the move and always layered and shaping the present" (Bang 440). Indigenous contributions are based in knowledges that have been built upon since time immemorial and are just as valid as Western science and

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colonial law. Indigenous epistemologies and ontologies offer a way to imagine a future that is sustainable for all as they “represent legal orders, legal orders through which Indigenous peoples throughout the world are fighting for self-determination, sovereignty” (Todd 18). Having Indigenous teachers in classrooms supports our teachers, students, and communities in deepening our Indigenous identities and knowledges, which in turn reinforces our sovereignty and sense of collective continuance.

As Indigenous feminist scholars, we know the power of hope and the ability of our knowledges and ways of being to create alternatives and support transformation. We believe this applies to education, particularly science education, as well as the broader field of science. The use of Indigenous feminisms “provide analytic concepts often left out of environmental science efforts that intend to empower. At stake are how the reclaiming of traditions can give rise to entrenched forms of power wrought through colonialism, including heteropatriarchy and racism” (Dhillon 2). By reclaiming Indigenous knowledges through our educational systems, we empower our students, and their students, to embrace their ways of knowing and being, to celebrate our/their relationship with Land rather than domination over it, and to create better relationships with Land that have the ability to ameliorate the climate crisis. The damage being done to our earth right now is a result of disrespecting the land, of not understanding properly our relationship with Land—a very similar concept as to how settler colonialism deals with Indigenous peoples. However, Indigenous feminisms bring us hope because “Indigenous feminisms refuse patriarchal notions of tradition and counteract pervasive attempts to dominate Indigenous bodies, places, and sovereignties” (Dhillon 3). By turning to Indigenous traditions, which are also contemporary knowledges, we can support our students to honor themselves and their Lands. As Kimmerer tells us,

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traditional ways of knowing builds capacity for students in regaining a relationship with ecological systems which is based on indigenous principles of respect, responsibility, and reciprocity. It also builds an appreciation for intellectual pluralism, respectful consideration of other ways of framing, and addressing a question which is an essential skill in an increasingly globalized economy. ("Searching for Synergy" 319)

Tuck and Collet help us to understand that "Native feminist theories bring together critiques of settler colonialism with critiques of heteropatriarchy" and that "Native feminist scholarship has attended to the ways that settler colonialism and heteropatriarchy are mutually informing structures" (17). The critique of both settler colonialism and heteropatriarchy found within Indigenous feminisms are important to imagining a future that is different, that honors and respects Indigenous epistemologies, that recognizes humans' responsibility to the Land and more-than-human relatives, and that begins to decolonize and indigenize classrooms. This work must include "our lived experience, rich with emotional knowledges, of what pain and grief and hope meant or mean now in our pasts and futures" (Million 54). In doing this work, in honoring of the lived experiences of Indigenous peoples, in using Indigenous feminist ways of thinking, we "strive to recover our former selves and push toward creating better future selves by reclaiming Native values" (Goeman and Denetdale 9-10).

Reclaiming Indigenous knowledges is also a decolonizing and Indigenizing move, one that can be based in Indigenous feminist perspectives and worldviews. If we consider that "to 'decolonize' means to understand as fully as possible the forms colonialism takes in our own times" (Million 55), then by working with future teachers we can work to decolonize the lives of the students they work with, as well as our own, within the education system that is, in itself, a settler-colonial institution. In this work,



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“we affirm the usefulness of a Native feminism’s analysis and, indeed, declare that Native feminist analysis is crucial if we are determined to decolonize as Native peoples...for Native women there is no one definition of Native feminism; rather, there are multiple definitions and layers” (Goeman and Denetdale 10). Teaching in decolonizing ways, using Indigenous feminist thought to guide that teaching, allows us to change the way we view our relationship with Land and our more-than-human relatives, to return to and reimagine Indigenous futures, and begin to work toward mitigating climate change.

As we face this climate crisis, we hold on to the power of hope and believe that, in this case, hope is intimately connected with restoration. Restoration is critical because it is “a powerful antidote to despair. Restoration offers concrete means by which humans can once again enter into positive, creative relationship with the more-than-human world, meeting responsibilities that are simultaneously material and spiritual” (Kimmerer, *Braiding Sweetgrass*, 328). Teachers have the ability to explain and demonstrate what good relationship with our more-than-human world looks like and to support students in their journeys to becoming good ancestors as well. Teachers also can influence how their students understand Land and relatives, both Indigenous students and non-Indigenous students alike. We know this is important, because as Kimmerer explains, “how we approach restoration of land depends, of course, on what we believe ‘land’ means... restoring land for production of natural resources is not the same as renewal of land as cultural identity. We have to think about what land means” (328). Teachers have the position, and Indigenous teachers the ability as future ancestors, to teach what Land is and what it means, and how we should think about caring for our Land.

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**Working with University Students: What Collective Continuance Looks Like on the Ground**

We now turn to an analysis of student journals in which future teachers documented what they were learning, reflected on how a university course on decolonization was shaping their understanding of their own K-12 educational experiences, and articulated aspirations for their own future teaching practice. As a way for us to show respect to the participants in this study, as well as to center Indigenous voices, we gave them the option of remaining anonymous or having their names used. The names that you will see in the following sections are the real names of the participants, used in conjunction with their words, at their request.

In working with Indigenous students who are training to be classroom teachers, we frame education as part of the larger project in which we/they can better understand our/their ancestral Indigenous teachings for the purpose of deepening our/their Indigenous identities and knowledges. Inherent in these teachings is a responsibility to our human and more-than-human relations, to the waters, air, Land, and place. We assert the importance of recognizing and honoring that "Indigenous peoples possess many, many years of living methodologies learned and passed on from generation to generation with the full belief that they were given to us by the Creator to help take care of our people, families, communities, and the generations to come" (RunningHawk Johnson et al. xiii). Our future teachers understand this concept, can and do pass this knowledge and way of being on to their own students, and, by doing so, honor their ancestors. This is an act of collective continuance and can be the beginning of healing ourselves, our communities, and our lands.

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*Teaching in Indigenous Ways for Connection*

The work we engage with in educating future teachers emphasizes the importance of interdisciplinarity. This is something Indigenous peoples have always known and that has been part of their knowledge systems since time immemorial. Connecting math and science to culture and art and humanities will be critical for addressing climate change, and these future teachers are uniquely positioned to provide this interdisciplinary way of learning and thinking to their students. Within Indigenous cultural teachings, it makes no sense to separate the so-called hard or natural sciences from the humanities. Why would humans see themselves as separate from the natural world? Why would our/their histories not be interwoven in teaching and understanding sciences?

Using an interdisciplinary lens to work with future teachers and their students, to show them the connections that exist between all persons in this world, is one way to address the climate crisis. This framework of how to be a good ancestor reinforces that we are all in relationship with one another as well as with our Land. "The sustainability crises we face are less about resource degradation and species extinction than of degradation of our relationship with the living world and the extinction of an ethical responsibility for the land which sustains us" (Kimmerer, "Searching for Synergy" 317), and by recognizing and teaching about our responsibilities, we may begin to address and redress the damages caused by settler colonial values and actions. As Indigenous educators, we know that "using Indigenous teaching and learning methods in our classrooms can help us counter the settler colonial violence that is an integral structure in western society. This work is necessary to imagine the possibilities of decolonizing our institutions and our lives" (Jacob et al. 2). By both doing teaching work that is focused on decolonizing and Indigenizing as well as teaching students in interdisciplinary ways that they are connected to the world around them, we can

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strengthen Indigenous students' identities, practice being good ancestors by reminding students of their relations and responsibilities, and begin to mitigate the climate crisis.

We know that "decolonization is a long-term project and process. It is only sustainable if done with a spirit of hope and in ways that build community" (Jacob et al. 4). The future teachers we work with know this too, and they plan to address it within their teaching and interactions with students. One of these future teachers explained how she plans to incorporate this type of teaching and learning in her classroom. Cecelia states,

I will also work to combat the euro-centric discipline divides. I will use my position as a Native teacher to look at how we can overlap disciplines of natural sciences and social sciences. I will look to implement math lessons that include culture and history. I think that this is how Indigenous children have been learning since the beginning. This is one way I want to decolonize my math and science classrooms.

Cecelia's quote demonstrates that Indigenous identity is critical to her liberatory plans as an educator. Note that Cecelia does not just refer to herself as a "teacher" but rather she claims her role as a "Native teacher" and intertwines this identity with the history and legacy of Indigenous ways of knowing and being—in this example, interdisciplinary teaching and learning—and Cecelia notes that Indigenous children have been learning that way "since the beginning."

Another future teacher, Breezy, told us that she wants her

students to feel not like a member, not like just an individual, but a crucial piece to the world that they're in, the community that they're in. It's one thing where we have individualism in Western society, so people very early on learned that they alone have some sort of value, but I want my students

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to know that they matter to me and they make my life better and help me, and I hope to help them as they help their peers and their parents and make that interdependence and that web of just relations.

In this quote, Breezy is articulating the importance of education in reclaiming relationality and collectivism. Western education systems are built upon individualized notions of progress, with individual report cards, test scores, etc. Such systems perpetuate an individualistic mindset that feeds capitalist modes of destroying the environment. From an Indigenous perspective, such assumptions destroy not only communal identities generally, but Indigenous identities tied to land/place. Within Indigenous kinship systems, individuals understand themselves as in a web of relations with responsibilities to one another (Jacob *Huckleberries*; Beavert *The Way it Was*; Beavert *The Gift of Knowledge*).

Breezy also commented on her responsibility as a teacher to lead forms of education in her classroom that purposefully affirm students' identities as individuals who are in a web of relationality and responsibility with those around them. Such teachings are aligned with Indigenous Elders' instructions that education be values-based, upholding Indigenous cultural teachings around "Respect, Inclusivity, Responsibility, Self-Awareness, Listening, Healing, and Unity" serving as the basis for youth learning "how to be" (Jacob *Yakama Rising* 45). In her own words, Breezy writes: "I think that's what my students can gain from me, is that this understanding of that... I will always do my best to uplift and maintain their sense of self but also their relationship with others."

These university students can see, understand, and support their students as connected beings within a related ecosystem, both locally and globally. They recognize a need to work with Indigenous populations on solutions to climate change and other

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local and global issues. This cannot be done through a disciplinary lens but needs to happen through connections and relations.

### *Contemporary Indigenous Teachers and Knowledges*

The future teachers we work with understand that they can be agents of change; they can see and feel the enactment of their work on and with their students. Part of the reason that they are effective with their students, as well as why they can be powerful as agents of transformation in combating climate change, is that they can and do integrate different disciplines in the way that their ancestors did. These students draw on their traditional knowledges for teaching and learning, for ways of being in and with the world, and do so in contemporary times. They are practicing Whyte's collective continuance in their classrooms and teachings.

While Whyte may not write about perseverance specifically, we believe that it is an integral part of practicing collective continuance. Indigenous peoples have been applying their skills of perseverance since time immemorial and continue to do so today. De Mars and Longie write that "without perseverance, the Dakota would not have survived the world they lived in. Their perseverance is one of the main reasons why their descendants are here today" (114). We believe this to be true of most, if not all, Indigenous peoples. Education is part of perseverance and "is important to Indigenous peoples, has always been part of our lifeways" (RunningHawk Johnson et al. xii).

In thinking of education within US public schools, Indigenous educators often still must work within the context of 'subjects' even though their teaching is interdisciplinary in nature. Specifically addressing science classes, part of the work to be done is in "changing our science curriculum so that it is based in Native philosophies and rooted in TEK and place" (RunningHawk Johnson 87) because this

can “be an effective way to actively engage Native students in science classrooms while affirming their identities and making connections to their learning at home and in their communities” (RunningHawk Johnson 87). This type of teaching and curriculum honors Indigenous students, their communities, and the knowledges they bring to school with them. The progression of Indigenizing our ‘science’ curriculums “must start with the process being non-linear and focused on the connections between, and the relatedness of, all beings” (RunningHawk Johnson 91). By centering these connections and relations, teachers empower Indigenous students, and all students, to treat the Land differently and to change their relationship with it, potentially resulting in a change to viewing the climate crisis and hopefully action towards a more sustainable way of life.

Education continues to be important for Indigenous peoples, and as we adapt and attempt to address our current climate crisis, we “use the current educational system as best we can, to promote a better life for our youth, to create better opportunities for our communities, and to grow our capacity for self-determination” (RunningHawk Johnson et al. xii). We know that it is important for our Indigenous youth, and for all our young people, to have teachers who can help them learn to persevere. Part of the way that we do this is by teaching Indigenous values and teaching in Indigenous ways. We know that “teaching traditional values, particularly perseverance, can impact Native American student achievement through increased effort” (De Mars and Longie 129), and, as university faculty working with future teachers, we support and honor these traditions, and promote them in contemporary classrooms.

Despite centuries of colonization, oppression, degradation of our homelands and ways of being—the very roots of climate change—Indigenous peoples remain resilient and hopeful. We continue to draw from the teachings of our Elders to guide

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our work in caring for each other and our precious homelands. Kari Chew and colleagues inspire us to remember the importance of hope and love as a basis for Indigenous education; they instruct, "[e]nacting both hope and change is an intergenerational process" (132). Indigenous peoples recognize that their relationships and responsibilities exist in change and within transformation. We are contemporary, we are agents of change in the here and now, and our Indigenous teachers are on the leading edge of intergenerational learning and hope. We need to decolonize science and science education in order to empower Indigenous communities and students, as well as to have a global impact.

Our students grasp the importance of acknowledging the wisdom that Indigenous peoples have been stewarding since time immemorial, yet at the same time recognize that this is contemporary knowledge held by/with/for contemporary people. They also see how it can and should be used in a global context.

Holly talked about her experience in class as she became more aware of how essential it is to consider Indigenous knowledges as contemporary. "Essentially, yes we are learning how colonization affected the Indigenous population as a result of Manifest Destiny, but after the Zoom class I realized that it was also recognizing that the current population is still very active in our society. It is about being more involved in incorporating Native education into my curriculum as a future educator and the importance of furthering it." Holly is talking about her role as a teacher, specifically an Indigenous teacher, and how she takes up the position of teaching in Indigenous ways as well as pushing that learning forward with her students. This requires a knowledge of the past, an awareness of settler colonialism, but at the same time seeing a way forward that supports interdisciplinary learning which can affect our world, can be a way to effectively deal with climate change.



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Vanessa also talked about connecting ancestors and traditional knowledges with her current teaching practices. As she learned about a field course titled People of the Big River (Black and Jacob), which takes high school students on a two-week experience across eastern Washington and connects them with “tribal elders, scientists, and natural resource managers for a unique study that blends Western science with TEK” (152), she told us that she “was able to see the way the field experience connected history with the current lives of students now. Those connections brought students closer to seeing the way of life for many of their ancestors and the impact their lives have on today’s teachings.” The ability to make these connections and to support them in our youth is needed now more than ever, and Indigenous teachers are uniquely positioned to do this work.

Whyte tells us that collective continuance is “able to connect to more complex, intersectional, and globally integrated accounts of ecological domination within, before, and beyond US settler colonialism” (“Settler Colonialism” 126). We see the evidence that our students understand this to be true, and we can use this knowledge to bring about change within their classrooms at local, national, and global levels.

Nicole told us that

I kind of thought of that, a while ago, in my classroom I would like to have pictures of the traditional, so like for traditional Indigenous, some sort of picture and then have information on that, talk about the traditional life but then do like life now and show how we still connect to the traditional lifestyle but we are also more modernized in a way.

Nicole is demonstrating here that connections to traditional knowledges are important and need to be continued in classrooms while at the same time using those traditional knowledges in contemporary ways and to address contemporary local and global issues.

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**Conclusion: Indigenous Teacher Leaders as Key for Addressing Climate Change**

Indigenous knowledges are important, and Indigenous peoples need to lead this work. Indigenous teachers are crucial for many reasons, not the least of which is because of the dominance and importance of Western education systems on Indigenous homelands. As Indigenous teacher educators we seek to

challenge and transform higher education to secure a reality of degreed community based educators through a commitment to honor and strengthen the knowledge and experiences Indigenous teacher candidates bring with them to teacher education and a commitment to transformative educational leadership which affirms and legitimizes Indigenous students' desires to serve their communities, people and lands. (Anthony-Stevens et al. 2-3)

Indigenous teachers can lead the reclamation of our knowledges, and in doing so shift the institutional cultures in our lives. Non-Indigenous peoples need to respectfully learn from and support this work to be in good relations with our peoples and homelands.

The larger goal of our work is to center Indigenous knowledges within the K-12 public education system. To do so, we call upon Indigenous peoples to be in front of the classroom and lead within our elementary and secondary schools, to teach about caring for Lands and relations and connecting this learning to addressing climate change caused by colonial practices. We also call upon non-Indigenous people to be our allies in this work, to support Indigenous teachers and to be part of the process of collective continuance for Indigenous peoples.

Whyte writes that "theories of collective continuance have moral implications for Indigenous communities themselves... many of us have experienced oppressive forms of self-determination and revitalization, where our own people seek to bring back types

of relationships without attending to qualities of relationships... examples like these ignore the moral significance of qualities of relationships in the operation of emerging responsibilities or persisting responsibilities" ("Settler Colonialism" 141). As teacher educators we must pay attention to the quality of the relationships we have with our future teachers, so that they may have good relations with their students, their communities, and their Land. This gives us the opportunity to re-create relationships and knowledges with our Land and to address the ongoing climate crisis in ways that are responsible and sustainable.

As teachers, as educators, as Indigenous people, we have an ethical responsibility, one that is dismissed and pushed aside, erased, in a settler-colonial way of thinking and being in the world; a responsibility that Christine Nelson and Natalie Youngbull discuss in their concept of "warrior scholars" ("Indigenous Knowledge Realized" 93). We must follow Nelson and Youngbull's calling to fulfill a responsibility to students and their/our communities as a basic expression of respect for Indigenous youth and for our Land, both local and global. Taking this type of relational approach "means that my reciprocal duties to others guide every aspect of how I position myself and my work, and this relationality informs the ethics that drive how I live up to my duties to humans, animals, land, water, climate and every other aspect of the world(s) I inhabit" (Todd 19). By centering our relationships to each other, to our more-than-human relations, and especially to Land and place, we can change the way people think about caring for our earth and make strides toward ameliorating the effects of climate change. We are responsible for doing this work, and we need these future teachers to carry out this work with future generations. Doing so will address the great harm settler logics and systems have brought to Indigenous peoples and lands, a violent process that Beth Rose Middleton Manning describes as "decision-making that

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continues to reinforce inequalities and exclude both Indigenous populations and the range of Indigenous ways of being in relationship to the land" (*Upstream* 15).

Our future teachers and our students are thinking about their own identities and how they too can do this work. Marissa told us that the "readings this week made me dive critically into reflection on my positionality, and I think it requires further reflection. I am part of an underrepresented group in STEM majors, and the readings made me curious about cultural influences behind this. At this point, I feel conflicted between an identity of being the colonizer and also being the colonized." She exposes a sentiment that many of us who identify as Indigenous peoples in STEM feel, that pull between our Indigenous identities and the unrelenting assault of settler colonialism on our being. We believe that our Indigenous future teacher leaders can help to show their students that their identity, their traditional knowledges, their ways of knowing the world can be a valuable part of their science. This allows these future teachers to see science in a way that includes relationship and connections and therefore gives them the ability to address climate change in new and reclaimed ways. Their identities are an important part of this process. Connecting with their ancestors and teaching science in wholistic interdisciplinary ways are important parts of this process. This is part of the practice of collective continuance, taking care of our Land and world and creating a future that focuses on Indigenous futurities.

The beautiful work being done by our future teachers and their students provide us with a hopefulness, and hope "helps us to name the persisting elephants in the room—settler colonial hegemony, White supremacy, and institutional racism—as threats that constrain and contort the wellbeing of hope. Naming these unsettling threats holds collaborating non-Indigenous scholar-educators accountable to the roles played in perpetuating, or interrupting, the erasure of complex Indigenous narratives" (Chew et al 144). As Chew and colleagues suggest here, we also call upon non-

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Indigenous educators to educate themselves about Indigenous knowledges, and the histories of settler state violence that has traumatized and dispossessed Indigenous peoples. In engaging these counternarratives, non-Indigenous educators demonstrate a commitment to Indigenous collective continuance and to an educational system—and broader society—that ensures Indigenous futurities.

We must all work together, and Whyte helps us to begin this conversation by writing that TEK “should be understood as a collaborative concept. It serves to invite diverse populations to continually learn from one another about how each approaches the very question of ‘knowledge’ in the first place, and how these different approaches can work together to better steward and manage the environment and natural resources” (“On the Role” 2). This understanding of TEK can be the basis of bringing Indigenous and non-Indigenous allies together, particularly in the field of education and around the topic of climate crisis, which affects us all, although not equally. And while this is not an easy process to embark upon, it is important and must be done with respect: “Rather, it is an invitation to become part of a long term process whereby cross-cultural and cross-situation divides are better bridges through mutual respect and learning, and relationships among collaborators are given the opportunity to mature” (Whyte, “On the Role” 10). As Indigenous knowledges have known since time immemorial, relationships must be recognized, built, honored, and considered essential.

We know that “settler colonialism is damaging to everyone—it fractures and divides us; healing is needed so we can be whole people in our collective work to decolonize” (Jacob et al. 4). This healing needs to be led by Indigenous peoples and to include everyone. We agree that “Indigenous and non-Indigenous people benefit from processes the support narratives crossing geographic, disciplinary and membership borders. Furthermore, these crossings enable us, as co-authors, to enact

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relationships across difference as well as bring into relief distinct epistemologies and histories that define our differences" (Chew et al 135). We believe that working with Indigenous educators we can further this effort and continue to bring hope to Indigenous people, to nurture Indigenous futurities, to begin to mitigate the climate crisis by strengthening our relationships with Land, and to strengthen our collective continuance.

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