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Jonee Kulman Brigham

University of Minnesota - Twin Cities

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FROM DOMINATION TO A CARING ECOLOGY: HEALING PARADIGMS AND CREATIVE PRACTICES FOR THE APPRENTICENE

Jonee Kulman Brigham, AIA, MLS

Abstract

This article explores, in four main sections, the idea of designing and applying human-environment paradigms. First, Caring Ecology criteria for human-environment paradigms are proposed that combine the principles of caring in Partnership Studies, with compatible ecological conceptions of humans' dependent and integrated relationship within Earth systems. Next, these criteria are used to evaluate the strengths and weaknesses of five environmental paradigms which sets the stage for the following section critiquing the current "Anthropocene" paradigm and proposing a counter-paradigm: the "Apprenticene." Paradigms suggest roles and actions and "Apprenticene Practices" are proposed, calling for humans to *see* our dependence on Earth systems, *heal* our story as we accept past failures, and *learn* by apprenticing ourselves to the Earth system. Finally, these Apprenticene Practices are illustrated in an example of a creative practice called Earth Systems Journey that engages youth with an integrated experience of their human-natural environment. The paper concludes with reflections on how Partnership Studies and ecological principles can work together to support a thriving future for humans and the rest of nature.

Keywords: Partnership Studies; domination; Cultural Transformation Theory; Caring Ecology; dualism; holism; integration; environmental paradigms; environmental education; hierarchies of actualization; Anthropocene; Apprenticene; Earth Systems Journey; environmental history

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INTRODUCTION

Our planet, our Earth system, is undergoing immense changes that threaten to fundamentally alter the conditions that have supported life. Systemic change is needed to address the scale and breadth of the climate crisis we face. Donella Meadows, a scholar of system dynamics, describes many ways we can bring about systemic change,

and argues that the most impactful of these is changing our paradigms (Meadows, 2008). Likewise, Partnership Studies is concerned with shifting paradigms. It considers how inter-human and human-environment relations are affected by where societies fall on the domination-partnership spectrum: whether their paradigms reinforce the power of one group dominating over another, or whether their paradigms emphasize collaboration and partnerships for mutual benefit. In its Cultural Transformation Theory, the work of cultural transformation is to shift society toward a caring partnership model in order to increase the well-being of all humanity and the Earth (Eisler, 1988). Environmentalists have explored environmental paradigms and tried to make sense of human-environmental history through an examination of those paradigms. These versions vary in how they position humans in power and control relations with nature as well as the degree to which they separate humans from nature versus seeing both as part of an integrated whole of the planetary Earth system. This paper combines Partnership Studies and ecological perspectives into Caring Ecology criteria as a lens to evaluate human-environment paradigms. After examining prior environmental paradigms with this lens, two primary cases are explored that span scale - one of a **paradigm** for how we could conceive of the human-Earth system as a whole, and one of a **creative practice**, developed by the author, that works locally and with direct environmental experience. Both deal with story, systems, and a path from human domination of the Earth to partnership by casting humans as integrated parts of the story of Earth systems.

APPROACH

The relationship of Partnership Studies and environment is a potentially vast area of study. It can include how communities of people do or do not use partnership to positively influence environmental conditions for all. It can look at the ways in which management of the environment affects human partnership relations. This paper focuses on partnership relations between humans and the environment, specifically the role of human-environment paradigms that guide those relations. Using the general term, “humans,” is not meant to imply or propose that all cultures are alike, or should

be, in their human-Earth relationships. Humans in some regions are far less impactful on issues such as climate change, yet are far more impacted by its effects.

Paradigms and Design

Paradigms matter. It is widely recognized that metaphor and story that convey underlying paradigms are an important lever of systemic change. Meadows, author of *Thinking in Systems* (2008), describes paradigms as the “sources of systems” (p. 163). Marketers use the power of story to sell their brand (Sachs, 2012). Environmental writers and leaders have used the power of metaphor and story to launch and define entire movements (Philippon, 2005). George Lakoff and Mark Johnson, in *Metaphors We Live By* (2003), show how deeply our metaphors are rooted in our experience and our language—not merely literary flourishes, but determining the structure of thought.

The approach of this paper is hopeful and assumes that humans can find more sustainable ways to interact with the environment by changing behaviors and societal systems. The paper draws from systems theory and the importance of paradigms in human systems. In addition to the importance of paradigms, Meadows (2008) talks about the even greater importance of transcending paradigms, with flexibility to apply selected paradigms that help solve a particular problem (pp. 164-165). This paper explores paradigms in this spirit—as instrumental strategies toward a desired goal. In this sense, choosing a paradigm can be seen as a design problem: to find or create the paradigm and associated narratives that serve to further human-environment relations in constructive ways. Design thinking is an approach to problem solving inspired by the design disciplines. It varies in steps, but often includes taking in many sources of input, looking at prior solutions, engaging in idea generation and the creation of prototypes, and then testing the prototypes toward finding optimal solutions (Interaction Design Foundation, n.d.). Applied here, input on human-environment paradigms is considered from a wide array of sources and a “design prototype” is developed as part of the larger design process of improving human relations with the Earth.

Caring Ecology Criteria

This examination of human-Earth paradigms is interdisciplinary, drawing from a number of fields. A primary source is Cultural Transformation Theory. In addition, texts that inform environmental paradigms are referenced from environmental history, ecocriticism, environmental humanities, literature studies, environmental education, sustainable development and design, and environmental art. Three themes are drawn from these sources to examine the characteristics of human-environment paradigms: domination- or partnership-oriented, dualistic or integrated (holistic), and how they portray human-environment hierarchies. Together, these three themes frame the proposed criteria for a “Caring Ecology” that combines the Partnership Studies approach to caring relations with an ecological view of humans as subsystems integrated within the larger Earth system. The name for this approach is inspired by Eisler (2008), who has argued for a map of the “Caring Economy” that includes the value garnered from nature as a sector, as well as other currently undervalued sectors like household and volunteer economies. Just as the Caring Economy aims to create a more complete map that includes caring activities, the Caring Ecology criteria aim to create a more complete human-environment paradigm that includes humans (with their culture and economy) as integral parts within and dependent upon the larger Earth system and in caring relationship with it.

PARTNERSHIP STUDIES AND CRITERIA FOR A CARING ECOLOGY

Partnership Studies is concerned with mutual, respectful care. But environmental historians have described many human-nature paradigms, including ones with benevolent intent, that have varying degrees of success in guiding society to sustainability. While there could be multiple conclusions from applying a Partnership Studies approach, it is an integration paradigm of humans as a subsystem of the Earth that is proposed as the best path for sustainability and is supported by both indigenous wisdom as well as ecological science as described in later sections. This ecological perspective is compatible with partnership studies as described below.

Caring: Partnership Studies and the Domination-Partnership Continuum

Partnership Studies founding scholar Riane Eisler (1988) has established an influential theory of cultural transformation about the tensions within societies based on where they are on a spectrum of domination to partnership. Domination-emphasizing societies tend toward authoritarianism—from the domestic sphere to the public sphere, with one group exerting power over another group. This is often male over female, and can also be expressed as parent over child, teacher over student, or employer over employee. This can also extend to human-environment relations, in which humans try to exert power over natural systems in order to harness benefits of nature for human well-being. In contrast to this domination paradigm, Eisler points to a desired future, (and under-represented history), of societies emphasizing partnership. In partnership paradigms, members of a community, family, workplace, or nation care for each other and the environment. Mutual caring is central to the Partnership model and forms one of the pillars of a Caring Ecology.

Partnership Studies and Integration

Partnership Studies looks at the relationships between individuals or groups—for example, male and female, or humans and nature. One way to look at this approach is as a shift from a dominating dualism toward a mutually caring dualism. Or, considering the potential participation of multiple groups, the shift is from dominating diversity to a mutually caring diversity. The complementarity of differences, such as between male and female, points to how all variety of strengths and perspectives can contribute to each other in cooperation.

But what about the combination of these diversities into a larger whole? What do the relationships add up to? The Partnership model also points beyond cooperation between multiple entities to a larger unity through diversity. This applies to more than human-to-human relationships. In terms of human-nature relationships, Eisler (1988) writes, “Both the mythical and archaeological evidence indicate that perhaps the most notable quality of the pre-dominator mind was its recognition of our oneness with all of nature...” (p. 75). She points to the Gaia hypothesis (that Earth acts as a living organism,

made up of living organisms) as one way this perspective is reflected in modern ecological thought (p. 75). She also refers to the symbolism of partnership-oriented societies and the prevalence of the circle or chalice representing “the consciousness of our unity or linking with one another and all else in the universe” (p. 193). As with the circle symbolism of the Tao, and its integral parts of yin and yang, the Partnership model reflects “both-and” rather than “either-or” thinking when it comes to duality and unity.

While a mutually caring human-nature dualism can be constructive—for example fostering paradigms of stewardship and gratitude for Earth’s bounty—the more integrated dimension of Partnership Studies provides a more ecological version of human-environment relations. A paradigm of human-environment integration is compatible with Partnership Studies and is a second pillar of Caring Ecology criteria.

The Human Place in Nature: Partnership Studies and Hierarchies of Actualization

Partnership societies still have hierarchies, but they are hierarchies of actualization aimed at mutual benefit, instead of hierarchies of power aimed at preservation and harvest of that power for the benefit of the dominant (1988). Thus, for example, teachers and students would hold mutual respect, and participate together in the learning process, where the more actualized (in this case more educated) teacher helps guide the student to grow as well. Eisler describes these partnership hierarchies of actualization as “systems within systems,” for example, “molecules, cells, and organs of the body: a progression toward a higher, more evolved, and more complex level of function.” She contrasts this with hierarchies of domination as “human rankings based on force or the threat of force,” and notes that they “characteristically inhibit the actualization of higher functions, not only in the overall social system, but also in the individual human” (pp. 105-106). Partnership Studies, like the ecological perspective, is rooted in the idea of systems, and acknowledges hierarchy within those systems. But the perception of where humans are placed in hierarchical relationship to the Earth is debated, as discussed later. An ecological view points to our dependence on natural

systems, placing us as juniors in the hierarchy. This view can be compatible with Partnership Studies and is the third pillar of Caring Ecology criteria.

EVALUATING PARADIGMS OF HUMAN-ENVIRONMENT RELATIONSHIPS

As described in the following sections, a number of environmental thinkers have addressed the issue of our human-environment relationship. Presented below are five human-environment paradigms representing Western and mostly post-settler U.S. views. Each of the five paradigms are evaluated in terms of Caring Ecology criteria: how they exhibit different caring or domination elements as understood by Partnership Studies, the degree to which they are dualistic or integrated, and how they position humans in hierarchical relationship to nature.

Paradigm 1: Original Integration: Indigenous Models

The idea of seeing humans as part of nature is not new. Indigenous cultures—both in the present and in their past—are rooted in a sense of unity and relationality with nature, finding themselves as humans, integrated into a larger story of the Earth. This familial relationality is still present, as noted by education professor Thomas Peacock (2002) in *Ojibwe Waasa Inaabidaa: We Look in all Directions*, a book about his Ojibwe culture and its history, “Just as our ancestors knew the interrelationships of things and lived their lives as brothers and sisters with all the animates and inanimates of the earth, the Ojibwe of today are slowly returning to these values” (p. 42). Robin Kimmerer, professor, author, and Director of the Center for Native Peoples and the Environment, integrates Native knowledge and sensibility with ecological science. In her book, *Braiding Sweetgrass* (2014), she describes plants as teachers of interdependence that “remind us that all flourishing is mutual,” and calls the human-nature relationship, “a covenant of reciprocity: plant breath for animal breath, winter and summer, predator and prey, grass and fire, night and day, living and dying” (pp. 382-383). This reciprocity isn’t necessarily without hierarchy. Peacock talks about the place of the Ojibwe (as well as many other indigenous cultures) in relationship to nature, saying, “Animals were regarded as elder brothers and put before man in the

order of things” (p. 50). Indigenous people in America had success sustaining their own lives as well as surrounding ecosystems using their world view and its corresponding practices, although environmental historians caution about idealizing American indigenous environmental practices, or treating them monolithically (Harkin & Lewis, 2007; Garrard, 2012).

This approach addresses all three pillars of Caring Ecology criteria. It is both mutually caring and places humans as junior members of a natural hierarchy of actualization, learning from elder relations. While modern life has become more complex and changed what is possible, and few propose going back to all the same practices of a prior era, the underlying principles of an integrated world view, conscious of humans as junior members dependent on a larger nature, can be brought forward to help address the challenges we face now. In fact, even though this view originated in a land-based culture, it can apply today, and as Peacock points out, the Ojibwe are renewing and returning to these ways of seeing. This merging of traditional and modern knowledge and culture is also evident in Kimmerer’s work.

Paradigm 2: Dominating Dualism: Settlers and “Second Creation”

In contrast, many American settlers placed themselves above the natural world, and distinct from it. American Studies scholar and historian of technology David Nye describes settlers’ land narrative of a “second creation built in harmony with God’s first creation” (2004, p. 1). He argues that the need for this settler narrative was due to settlers’ displacement from their homelands, in contrast to indigenous peoples having been in America for ages. “The Native Americans’ self-conception was inseparable from the first creation of the world; former Europeans had to project a second creation” (p. 3). This second creation entailed the use of technologies such as the axe and the mill, as part of human remaking of “wilderness” into uses productive to humanity. Note, however, that while settlers, as well as later U.S. accounts of history, may characterize the land as originally “wild” and untouched, Native Americans had already been actively managing the land (Hughes, 2004).

Nye points out that the American story taught well into the 20th century is that settlers did not see this as exploitation, but considered it improvement, and in keeping with God's first creation, saying, "Far from violating an original perfection, the settlers were seen as working in partnership with nature" (2004, p. 285). The sense that humans were helping nature fulfill its highest form is not unlike the language in the Partnership model around hierarchies of actualization, in which those at the top help those below to grow and develop. Except, as it turns out, not everyone agreed that nature was being improved. This points to a problem of defining actualization and interpreting the needs of another or speaking on its behalf when it is silent or other-lingual, as is nature's language to humans. When humans see themselves at the top, and are deciding the terms of actualization, how will they decide the most beneficial state of nature, whether for nature's sake or their own? Environmentalists debate what version of nature is appropriate to preserve or seek and what kinds of human uses and human presence, if any, is appropriate in natural places. The definition of actualized nature depends on human interpretation and values. And as Nye points out, even well-meaning conservation movements were still a human domination narrative (p. 301).

Environmental historian Carolyn Merchant (2004) refers to these various versions of idealized nature as "Edens," in her book *Reinventing Eden: The Fate of Nature in Western Culture*. Merchant is another of a number of thinkers chronicling American nature narratives. In the book, she maps trends of these narratives toward proposing a new alternative. She recognizes the dominating narrative discussed above as "second creation" and calls it the "Recovery of Eden" story that has humans "turning wilderness into garden" (p. 2).

In terms of Caring Ecology criteria "second creation" paradigms reflect a dualistic view of humans and nature, with humans above nature in the hierarchy. While Second Creation is rooted in a caring concept of improving the Earth by bringing it into useful production, it does not ultimately result in a mutually caring human-environment relationship, partly because the other elements of a Caring Ecology are missing, and distort our place within the larger ecosystem.

Paradigm 3: Inferior Dualism: Humans as Spoilers of Wild Nature

Merchant (2004) also describes a counter-narrative that tells a story of decline rather than progress, and represents a wish to restore the Earth to its original wild state, seeing nature before human development as the real Eden. She describes the tension between these two approaches and argues against either one: “The two stories seem locked in conflict. Played out to its logical conclusion, each narrative negates human life: the mainstream story leads to a totally artificial earth; the environmental story leads to a depopulated earth” (p. 4). Neither of these dualistic relationships work for both parties.

This narrative is interesting to compare to the partnership ideal. It seems to be more caring than the mainstream narrative of human progress and power over nature in its concern for nature’s wellbeing; however, it accepts the ideas of one group to determine what the nature of nature ought to be. Another way it differs from the partnership ideal is that it excludes humans from full participation in this world. In a sense, it could also be deemed a domination dualism, with nature on top, and humans as unworthy to enter, their participation spoiling the view. From a human-centered perspective, it is an inferior dualistic narrative, with humans at the bottom.

In terms of Caring Ecology criteria, while this shares a placement of Earth in the lead, it does not integrate humans into this hierarchy in a caring way and it retains a human-environment dualism. While Caring Ecology criteria point to the problem with this paradigm as a lack of an integrated and caring view of humans in nature, Merchant challenges this paradigm for its placement of humans at the bottom of the hierarchy, which leads to her proposal in the next section.

Paradigm 4: Benevolent Negotiated Dualism: Humans and Nature as Equal Partners

In response to the prior two narratives, Merchant (2004) proposes a third narrative of humans and nature in equal collaboration that she calls the “Partnership Ethic,” (which is related to but not identical with Eisler’s Partnership model.) She traces the roots of

this ethic represented by environmental writers over the course of American history. She includes Eisler's Partnership model as well as that of other feminist authors, often embedding human-to-human collaboration and equity in the same theories as human-to-nature approaches (pp. 231-233). Out of these roots, Merchant's version of partnership, rather than placing humans above or below nature, place humans as equals with nature with respect and consideration of human needs in balance with nature's needs. Building on these principles, she explains, "A partnership ethic entails a viable relationship between a human community and a nonhuman community in a particular place, a place in which connections to the larger world are recognized through economic and ecological exchanges. It is an ethic in which humans act to fulfill both humanity's vital needs and nature's needs by restraining human hubris" (p. 224).

In dividing the negotiating partners as human and non-human equals, she creates a well-intentioned dualism. She gives an example of how this might play out in a section titled "Nature as a Partner at the Table," saying, "In a partnership ethic, both humans and nature are active agents. Both the needs of nature to continue to exist and the basic needs of human beings must be considered" (p. 228). She says "...all the parties and their representatives must sit as partners at the same table" (p. 228). And she references representatives for nature such as "conservation trusts, scientists, community representatives, and spokespersons for wetlands..." (pp. 228-229). This position poses challenges. First is the question of who gets to speak for nature, as there are frequently multiple perspectives on what nature's "needs" are. It is not clear what the agenda of the Earth is or if there even is an agenda. The second is that it does not reflect our complete dependence on natural systems. All of our technology, food, and even social structures are built on a foundation of our successful participation in natural systems. In this light, it seems problematic to invite representatives for nature to the proverbial negotiating table, as if the negotiations happen outside the matrix of the natural world. How can nature's proxy come and sit at the table when the humans sitting there, and even the table itself, *are* nature?

Dividing the world into humans and non-humans and navigating equitable relationships between them conflicts with what we know from local and planetary ecology from a systems perspective. Human wellbeing resides within a web of ecological relationships. Merchant's partnership ethic represents some of the best of what we've been able to achieve at environmental "negotiating tables." It is progress toward reducing our domination attitudes, but it is incomplete. It contains two dangerous pretenses: that we can operate outside Earth systems, in negotiation with them, and that we are power equals at the table. Nature's atmosphere is required for us to breathe. Nature's temperature ranges are required for us to live. We have confused the flexibility we have within the resilience of natural cycles to withstand our disruptions, with independence from those cycles.

In terms of Caring Ecology criteria, humans are misplaced as equals in the hierarchy, and the equal negotiating partner concept implies a dualistic relationship, although the value of nature is acknowledged. Caring and mutual respect are included, but the humans-and-nature-as-negotiating-partners story of our place is no longer adequate to our knowledge or situation.

Paradigm 5: Rediscovered Integration: Ecosystem Membership in Gaia

In place of either dominating or benevolent dualisms that deny our status as a subsystem—an animal species within a larger ecological system—we return to the idea of our integration into a natural hierarchy of actualization. In this case we place ourselves within nature's framework instead of placing nature as a topic within our economic and social framework. In his book *Sacred Balance*, David Suzuki (2002) calls for this kind of integration: "...we must find a new story, a narrative that includes us in the continuum of Earth's time and space, reminding us of the destiny we share with all the planet's life, restoring purpose and meaning to human existence" (p. 25). He describes the moment of his own shifted narrative after trying to write about our interdependence with nature in a scientific and transactional fashion, tracing molecules from our bodies back to nature. He realized, "... 'We *are* the air, we *are* the water, we *are* the earth, we *are* the Sun.' With this realization, I also saw that environmentalists

like me had been framing the issue improperly. There is no environment ‘out there’ that is separate from us. We can’t manage our impact on the environment if we *are* our surroundings” (pp. 7-8). He notes that the insights of indigenous groups have influenced his work (p. 7).

Also supporting an integrated paradigm is English literature scholar Greg Garrard. In his book *Ecocriticism* (2012), he surveys the history and projected future of writing about the human-nature relationship. After comparing competing thrusts in human-nature narratives similar to the ones discussed earlier, he concludes by leaning toward an approach like James Lovelock’s Gaia approach to Earth as living organism, though noting that he has reservations regarding how it has sometimes been interpreted as applying motherly or caring attributes (pp. 199-201). While any metaphor is limited, he concludes, “Only the relatively novel constructions of the human animal and the whole Earth, both profoundly shaped by scientific thought, seem to offer metaphors adequate to the novelty of our predicament, and even these may be inflected quite differently in different contexts” (p. 202). This sense of human place as a subset of natural hierarchy is also reflected in the shift in visual diagrams of sustainability: from the “three-legged stool” of social, economic, and environment categories in an overlapping Venn diagram of equal circles, to the nested circles model of sustainability where economy is shown as a subset of social systems, which in turn are a subset of the larger environment (Moir & Carter, 2012).

In terms of Caring Ecology criteria, the Gaia paradigm and its permutations do address humans as subsystems, integrated within a larger Earth system. But they do not inherently speak to caring relationships between humans and the Earth. While interdependence could foster mutual care based on protecting self-interest, this is different, for example, than valuing nature for itself, as the Bolivians have done in granting nature personhood (Vidal, 2011). Likewise, while understanding interdependence, humans can treat their ecosystems as either harsh environments in which they must compete for survival, or as potentially nurturing environments that care for them, if they find their cooperative place within the natural community. The

physical sciences may not be able to go beyond arguments of interdependence toward any sense of caring relationship—that may be the role of the humanities. And so the Gaia paradigm serves as a scientifically rooted base paradigm of the whole system, to be completed by an added layer regarding the meaning and role of humans within the Earth system.

Guiding Paradigms and Practices of Caring Ecology

As shown in the review of these five environmental paradigms, our concept of natural workings and our place within them is always evolving and incomplete, and should inspire humility regarding our knowledge. But by renewing our paradigms to place ourselves within our best understanding of nature’s framework, we better reflect our actual position at the proverbial negotiating table, where we can regard nature’s rules (for example, carbon balance) as a given baseline, superseding our needs for quarterly profits. Our placement within nature’s framework need not deny our existence and livelihoods, just put them in ecological perspective—which in turn might change our minds on how to pursue our interests. We must recover our sense of being a subsystem— younger siblings, rather than masters of nature. We are powerful, but not all-powerful, and it serves us best when we know our place as members, along with other species and natural subsystems in the larger Earth system hierarchy of actualization.

Finding our place in Earth’s story is a matter of both science and values as we gain new understanding of how the world works, and new understandings of how to live within that world. Cultural Transformation Theory points to the way paradigms are reflected across scales, from the global to the local, in our overarching cultural stories as well as our most intimate practices. The next two sections explore examples of how Caring Ecology criteria for paradigms of human-nature relations could be applied to our global Earth story as well as our engagement with our local environments.

THE APPRENTICENE AS A HEALING PARADIGM

The idea that there is some single story—some paradigm or metaphor that is a panacea—is unlikely. But we cling to stories. Consider the impact of the concept of second creation on American history, or the impact of *An Inconvenient Truth* (David, 2006) on the environmental movement. One term that is increasingly important, at least in environmental circles is “Anthropocene,” a name for our current geologic era proposed by chemist Paul Crutzen (2002), to reflect how human activity has now become a force of geologic proportions, changing the dynamics of our climate system. It is a powerful concept and story of our current role on Earth that has inspired many responses. On the one hand, it describes a geologic era, but because it is named after human influence, it also doubles as a story about humans. It suggests a realization that humans have Earth-changing power, perhaps God-like in our ability to change the very nature of creation. Depending on one’s view of humanity, it may inspire despair at what we’ve wrought, or determination to take our highly influential role and use it to fix or geo-engineer the Earth system.

But a number of critics have concerns about demarcating an era in this way and about the implications of the term Anthropocene (Monastersky, 2015; Moore, 2015; and Bauer, 2016). It is anthropocentric, for one, putting humans at the center of blame, and enabling narratives that put humans at the center of solutions. From a Caring Ecology perspective, this name reflects a dominating dualism: humans have overcome the power of nature, in a far-reaching version of “second creation” gone wrong. However, as we look at the problems the climate crisis poses, such as the survival of coastal communities and the impacts on weather intensity and patterns that will affect entire ecosystems, we hardly seem to be in charge. The Anthropocene is helpful in describing our disruption, but perhaps not helpful in describing a desired destiny. If we need a new story, as Suzuki (2002) and others have said, what is it?

This paper proposes the “Apprenticene” as one possible name for our era, as a direct counter-narrative to the Anthropocene. The proposed Apprenticene narrative embraces a paradigm of humans integrated as subsystems within the Earth system and charts a

path for caring relations. It extends science-based integrated paradigms such as the Gaia theory into the realm of human story. There will be many stories. Their evolution is natural and healthy, and the ability to transcend paradigms keeps us both humble and agile as we make sense of our role and learn to live within Earth systems. This proposal is not informed by geologic science nor scholarly consensus. It is a “design prototype” put forth in the spirit of generating ideas for continued conversations. Apprenticene is chosen as a prototype paradigm for three primary features:

- its cultural associations with a story of success turned failure,
- the resulting learned humility that leads to finding our right place, and
- its associations with embodied and embedded learning that engages with process and context.

If the Anthropocene describes the consequences of a dominating dualism, the Apprenticene is intended as a healing paradigm that points toward a Caring Ecology vision for our place and purpose within nature’s hierarchy.

Apprenticene as a Paradigm Making Sense of Our Failure

In his book, *The Sorcerer’s Apprentice*, literature scholar Jack Zipes (2017) outlines the way the theme of the sorcerer’s apprentice has been used across time and cultures, including its prevalence in modern books and film. The common outline of the story is that of a student apprenticed to a magician who errantly uses a spell to ease his work, only to find he cannot control the power he has unleashed, and must be saved by the master. One of the more famous western versions of this tale is in a popular German poem by Johann Wolfgang von Goethe (2017, Original 1797), that inspired musical scores and spinoff stories. American readers may recognize the Disney version in which Mickey Mouse plays the apprentice, and uses his spells to order a broom to carry pails of water for him. The broom accelerates and multiplies, flooding the magician’s den, until the magician returns to fix the mess and scold his apprentice. The story is a cautionary tale for the curious apprentice, tempted to tinker with magic beyond his control.

As a paradigm, The Apprenticene suggests the downfall of our attempt at a dominating dualism in which we imagined ourselves above and overpowering nature. It embodies this lesson and explains our failure. Whereas the Anthropocene names an era for our power, the Apprenticene names it for our failure. At first, the apprentice is quite pleased with himself, harnessing magic to reduce his burden, but as with our place on Earth, he has overstepped. The power unleashed turns out to be the power to disrupt, not control or rule the Earth. We have used technology and fossil fuel-based economies that we have not learned to control within the constraints of natural systems. Yet, the story need not end there, if failure is reframed as part of a learning process, teaching us what we didn't consider and fostering humility.

Apprenticene as a Paradigm for Humility

Zipes (2017) points out how the apprentice tale has been used differently at different times as a moralizing lesson about power, rank, and humility in relation to authority and authoritarian systems. He divides the story themes into two categories. One is the "Humiliated Apprentice," in which the lesson is a warning to fall in rank and not try to extend one's reach beyond one's position. This is illustrated in the version described above. The other category is that of the "Rebellious Apprentice," in which the apprentice challenges authority, learning the sorcerer's magic and eventually defeating him. Zipes relates the story types to master/slave dialectics, and the treatment of children and the disempowered in authoritarian cultures. As responses to authoritarian dynamics, neither of these two tale types embody the partnership ideal within Caring Ecology. They merely switch the protagonist, the apprentice, from dominated to dominant roles. Zipes acknowledges the limits of the resolution, noting that "...magic can be used for liberation only under conditions that allow for the democratic sharing of knowledge," and that the dialectic in the tales "...serves mainly to raise consciousness of the problem, not as a solution" (p. 29).

But in the partnership ideal of Caring Ecology, humans need not be humiliated nor superior to learn the lessons of the apprentice story, if its extremes are modulated and

it is placed in a partnership context instead of an authoritarian one. In contrast to humiliation, humility is a trait valued across religions, and can keep one open to learning. Its etymological root (“Humility,” n.d.), like that of “human,” relates to “earth,” which is a fitting association for the integrated paradigm of humans as part of a larger Earth system. In contrast to the power won over domination in the rebellious apprentice stories, partnership fosters the growth of constructive rather than destructive power in a scenario of actualization. Zipes’ categories do not focus the book on a model of cooperation or the development of the apprentice nurtured toward humility and power to serve, although he points to some modern examples that move more toward partnership (pp. 65-77). The tensions in classic apprentice fairy tales relate to domination hierarchy, but the tale can hold useful lessons even in a partnership hierarchy of actualization. Finding one’s rightful place within a hierarchy is good for the whole system, and the Apprenticene concept can be a corrective for our overuse and overestimation of our power and role, as long as it is tempered by the compassion of partnership approaches, and leads to constructive humility.

Apprenticene as a Paradigm of Embedded, Integrated Learning

Another association for the Apprenticene is with the concept of apprenticeship. This association is helpful in finding our place as learners integrated into nature’s hierarchy of actualization, as well as fostering a sense of humility. In contrast to apprenticeship models of the past, embedded within authoritarian structures, apprenticeship can be an empowering, cooperative learning process. Guile and Young, in “Apprenticeship as a Conceptual Basis for a Social Theory of Learning” (1998), point to the transformational and collaborative possibilities of new forms of apprenticeship that go beyond expert knowledge transmission to engage the learner as part of an organizational learning process. In *Tomorrow’s Children* (2000), Eisler, while not focusing on the apprenticeship model per se, proposes a vision for education based on the Partnership model that includes learners as participants and contributors in an educational hierarchy of actualization, including opportunities to learn by practice, not just by the transfer of content.

The Apprenticene paradigm can remind us that we are learners—contributing, but less actualized members—of nature’s hierarchy of actualization. This story can help define our purpose on Earth as an apprentice species to the Earth system. In a Partnership educational model compatible with Caring Ecology criteria, we don’t need to choose between overpowering or being overpowered. We can strive to learn ever more about the Earth as well as ourselves, and practice—and surely fail along the way—how to thrive with each other and the rest of nature.

Implications of the Apprenticene Paradigm

Paradigms and narratives support different directions for action. If the paradigm and narrative of “second creation” led to fashioning the American landscape for settler purposes, what might an Apprenticene narrative support? Rhetoric scholar Daniel Philippon, in *Conserving Words: How American Nature Writers Shaped the Environmental Movement* (2005), outlines the history of environmental movements in the United States as narratives guided by “discursive frames.” For example, Theodore Roosevelt’s characterization of “nature” as “frontier” led to a narrative of “conquering the frontier.” And John Muir’s influence characterized “nature as park” leading to a narrative related to tourism of “visiting the park” (p. 7).

In terms of the Apprenticene vs the Anthropocene, this analytic frame could be applied, with the ‘Anthropocene’ perhaps characterizing “nature” as humans’ engineering and management problem, leading to a charge to “solve the problem” with humans as the lead designer. ‘Apprenticene’ might characterize “nature as our teacher,” leading humans to apprentice to the Earth system and solve our problems by better fitting within Earth systems. As names for our era, Anthropocene and Apprenticene speak not just to nature, but to our place in relation to it. The Apprenticene is a shift toward Caring Ecology criteria: from domination to partnership, or more specifically from dualistic domination to integrated partnership. In the table below, the two names for the current era are compared for the human-nature relationship they help us see, the role for humanity they suggest, and the actions those roles support. See Figure 1.

Figure 1. A Comparison of Two Human-Nature Paradigms

	Anthropocene	Apprenticene
Story revealed	Humans are a dominant force in Earth systems.	Humans are a disruptive force in Earth systems.
Power relationships	The Earth depends on humans.	Humans depend on the Earth.
Role for Humans	Accept our dominant position and take charge of Earth systems.	Accept our subsystem status, our failure, and ourselves and learn to work in partnership within our Earth system.
Goal	Fix the Earth to meet our needs in trade-offs between human groups and with other species.	Learn from the Earth to fix our ways in partnership with each other and other species.
Relationship Type	Dualistic Domination	Integrated Partnership
Hierarchy Type	Hierarchy of Power Over; Humans at Top	Hierarchy of Actualization; Earth system as leader

It should be noted that both of these are general paradigms that treat the concept of “humans” in a general way. Neither of these paradigms directly address relations between human groups nor articulate the non-monolithic composition of “humans.” There are differences between the two paradigms that are meaningful in how they could affect issues of equity between human groups in responding to environmental issues. As a dualistic paradigm, Anthropocene inherently divides the world into humans and nature, which leaves less opportunity for nuance in relations between more powerful and less powerful humans and their different visions for restoring Earth balance. Also, as a domination paradigm, Anthropocene reinforces the idea of domination, which, as Cultural Transformation Theory points out, works its way across interactions. Thus domination of the environment begets domination of less powerful groups, and vice versa. In contrast, the Apprenticene, emphasizing interdependence, humility, and partnership toward mutual actualization, works its way across interactions, with partnership imbuing both environmental and inter-human relations with constructive, mutually respectful approaches. Also, as an integrated paradigm, seeing humans as subsystems to nature, there is a more natural bridge to seeing one group or one nation as a subsystem of global community, dependent upon justice and peace overall to ensure justice and peace at home.

Practices for the Apprenticene, then, could be described as follows:

- **See:** Reveal our dependence on Earth systems.
- **Heal:** Accept our Failure, both accepting that we have failed to live in harmony with Earth systems, and accepting and forgiving ourselves for that failure.
- **Learn:** Apprentice ourselves to Earth systems.

These practices are already being applied in many areas. We *see* more of our dependence on Earth systems than ever. The climate crisis and its associated temperature variations and increased storm frequency and severity have heightened our awareness of our vulnerability to shifts in climate systems. A new paradigm of our dependence is in plain sight and more broadly recognized, even though denied by many. Some deny the evidence, and others accept the evidence but interpret it through the lens of human domination. As Meadows (2008) acknowledges, people can be extremely resistant to paradigm changes. Still, the new paradigm progresses. Performance metrics and life cycle analysis are increasingly used in the building industry that direct attention to the energy and water flows we depend on, as well as timber, metals, and other resources that get transformed into building materials. The analysis of material sources reveals a dependence on nature: even when materials are man-made, they ultimately rely on natural sources, dependent on Earth's supplies and cycles (Kulman & Schurke, 2001, pp. 65-68).

We *heal* our story as we first accept responsibility for our disruption—the unsustainability of our approaches—and then work to make amends, bringing our creativity to reworking entire sectors, such as the immense changes underway as we shift from fossil fuels to a renewable economy. Work by ecological leaders like Joanna Macy in her *Work that Reconnects Network* (n.d.) also points to the role of environmental grieving as part of this healing process, strengthening our bonds with the Earth. She “reframes our pain for the world as evidence of our mutual belonging (Foundations of the Work),” and provides a structured process to transform the pain into action.

We *learn* our place as apprentices to the Earth system by acknowledging the complexity and wisdom embedded in nature's structures, and accepting ourselves as a learning species within the larger whole system of life. However, while we can learn from or about nature, what does it mean to "apprentice ourselves to Earth systems" when it is non-human and cannot provide explicit instruction? First, a substantial portion of learning by apprenticeship does not involve explicit instruction. The practices of apprenticeship such as "observation, assimilation, and emulation" (Guile & Young, 1998, p. 176) are taken on by the learner within a context of practice, in this case the survival and prospering of a species. The 'master' is role model, and explicit instruction is de-emphasized. However, in the metaphor of apprenticeship, the teacher does provide feedback and guidance to supplement the learning experience. Unfortunately, nature's feedback can be harsh, with the ultimate feedback on our skill as a species being our failure to survive. Yet, with our ability to learn about natural systems and create models, we can often predict nature's feedback without having to actually experience all the consequences of learning by failure. In addition, some consider nature as a teacher, not just a mute or harsh context from which we can learn. For example, from the indigenous points of view described earlier, nature can be seen as a teacher that does indeed speak, if learners can attune their ears to the lessons. In Bolivia, for example, led by indigenous efforts, nature is being recognized with personhood (Vidal, 2011), challenging the industrial idea of nature as mere context and resource pool.

Some have explicitly described the desired human-nature relationship as apprenticeship. Rex Weyler (2013), one of the founders of Greenpeace, puts forth this metaphor in the article, "Nature's Apprentice: A Meta-Narrative for Aging Empires," and argues for global change, saying that "We have to recognize nature's patterns, then design society to restore, maintain, and support those patterns (p. 193)." With the same metaphor of apprenticeship, Clair Dunn (2017) takes a personal development approach in her website, "Nature's Apprentice," and conducts nature connection workshops aimed at personal transformation. These and similar approaches emphasize nature as a teaching model, with the role of humans as attentive and active learners.

More specifically, we learn our place as a subsystem within nature when we accept that we must work within ranges of greenhouse gas parts per million, instead of trying to tweak the Earth to fit with our current energy economies. Approaches like Biomimicry (Benyus, 2008), that consider nature's long history of "research and development" as genius to learn from, using nature's design patterns to improve the efficiency and performance of our products. If this idea is considered beyond a product level, to the design of a process, or even the design of our species' relationship to Earth, it could be a model for designing our survival inspired by and in collaboration with the rest of nature. If we can also think of ourselves as "bio," then our "mimicry" can represent an integrated apprenticeship, learning from our "bio peers,"—the other animals and plants and ecosystems that have solved problems of survival and adaptation. Using biomimicry in this way can set us up to be partners with other life in the pursuit of survival, in contrast to the risk of using biomimicry to make more efficient tools of a dominating culture. As Eisler points out in "The Gaia Tradition and the Partnership Future" (1990, pp. 32-33), our technologies, including our intellectual technology of language and ideas, can be used to further either domination or partnership, which is why getting the root of paradigms right is so important as a foundation for our learning.

The Apprenticene paradigm and Apprenticene Practices of see, heal, and learn are inspired by Caring Ecology criteria that see humans as integrated subsystems in caring relationship within the larger Earth system. The examples above are broadly described ideas and practices. In the next section, a more detailed example of a creative education practice rooted in Caring Ecology criteria will illustrate in more detail how Apprenticene Practices can be applied.

EARTH SYSTEMS JOURNEY: A HEALING CREATIVE PRACTICE

This section describes one example of Apprenticene Practices applied at a local level. Developed by the author, Earth Systems Journey is a model for transformative environmental education. It is centered on creating "experiential integration" of

humans within their environment. The mission of the model is to “Help youth connect and contribute to the world around them” (Brigham, 2014). The model is described in its documentation as follows:

“Earth Systems Journey (ESJ) is a curriculum framework for art-led, experiential, place-based environmental education about environmental flows, such as water, air, energy, or material, through the school building and grounds. ESJ is an approach that teaches ecological and environmental content, principles, analysis, and decision skills in ways that show how human-engineered systems are integrated with natural systems. At its core, the design of an Earth Systems Journey is to make a special journey, starting from a place of personal experience, following a flow of interest to its source and destination, as far as you can, so that when you return to where you started, your view of that place and its flows is transformed by knowing the larger story that runs through it, and the places, and people and natural elements that live in relation to it. What makes the journey special is its composition as a transformative experience paying attention to props, interactive and expressive activities, participatory storytelling, and time to reflect and integrate the experience into a personal story. By using the natural learning form of story, complex systems can be made both engaging and comprehensible” (Brigham, 2014).

Earth Systems Journey draws from the “hero’s journey” narrative pattern described by author and mythologist Joseph Campbell in *Hero with a Thousand Faces* (2008). He shows how this myth pattern spans cultures and time, from ancient religious stories to modern-day films. Basically, the hero or protagonist starts in a familiar place and in their familiar life, and gets some kind of ‘call to adventure’ that sends them on a quest. They then leave the world of the familiar to seek something—a treasure, or the answer to a question, or to battle a threat. Along their travels they meet various characters that may be helpful or dangerous. Finally, after exploration and challenges, they return home, changed, and with something to offer their community. In the case of the Earth Systems Journey, the hero’s journey concept is combined with a systems-thinking perspective that reveals the interconnections between young protagonists experiencing

the journey and the world around them. Essentially their quest is to find out how a flow, such as water or energy, connects them as a sub-system to larger human-engineered and natural systems (Brigham, 2014).

Mississippi River Water Journey Camps

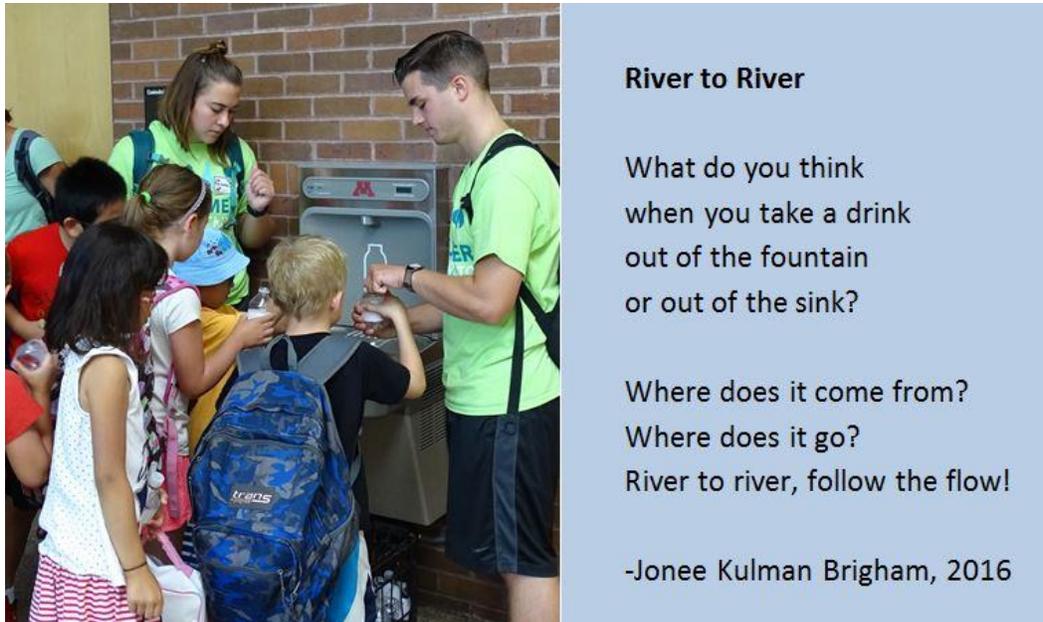
The Earth Systems Journey model has been applied in educational settings from pre-kindergarten through high school, in both private and public schools as well as in informal education. A recent application in a summer camp format will be used to illustrate Apprenticene Practices. Mississippi River Water Journey Camps (Institute on the Environment, 2017) were held in summer of 2016 and 2017 at the Institute on the Environment at the University of Minnesota. Campers aged 6 to 11 mingled with environmental scientists and scholars as they explored the story of water that flowed through the research building where camp was held. There were two camps: one that focused on the flow of drinking water through the drinking fountain, and one that focused on the flow of stormwater through a storm drain. The example below will focus on the drinking water version and will describe how it illustrates Apprenticene Practices (See, Heal, Learn).

A Creative Practice to See: Revealing our Dependence on Earth Systems

The entire structure of Earth Systems Journey is designed to reveal human dependence on Earth systems. The one-week summer camp, called “Water Journeys: Drink!” began with getting to know each other, and then moved to the camp drinking fountain to launch the journey. The drinking fountain, called a “flow node” in the model, is a symbol of human technological interface with the “natural resource” of water that is also tied to direct, bodily experience of the campers. A poem is used to reinforce the adventure of finding connections, and then the campers prepare for the trip with cameras, visual notebooks, water testing kits, and maps. (See Figure 2). They learn that they will help document the story of water for the public in an online geographic information system (GIS) story map which combines interactive maps with multi-media storytelling.

Figure 2. Campers at the Drinking Fountain

Children interact with the camp drinking fountain after reciting the journey poem.



On the second day, campers travel upstream to where their drinking water's journey begins—in this case, at the Mississippi River. First, they explore a prairie and rain garden storm water treatment park and learn how it uses natural elements to filter the pollutants carried by rain that has run off of lawns, roofs, and streets. Then they learn about the water intake building that they can view across the river, where the water is sucked up in giant pumps and sent in underground tunnels to begin the water collection and treatment process. Along the way, they visit a lake the pumped water passes through; visit the water treatment plant and the water tower on campus; follow the water access points on the street on the way to their building; and finally see it come out of the drinking fountain. The drinking fountain is the center of the journey. Unlike many heroes' journeys, the protagonists (campers) are not in a far-off land at mid-story, but are back at their home base, discovering the primary insight to the quest: that they are midstream of a larger flow.

This midstream perspective is then reinforced by following the water down the drain on the next day, peeking into sanitary sewer manholes where they find the water combined with toilet water, and taking a riverboat ride down the Mississippi River to view the waste water treatment plant along the river bank, and finally arriving at the outfall, where the treated sewage—now cleaner than the river itself (Roper, 2015)—returns to the river. This completes their journey of finding their own water system—from start to finish—to be a subset of a larger natural water system, albeit altered by humans all along the river.

The journey is intended to challenge a paradigm of one kind of water that comes out of the tap as a different entity from the water that flows in the river. Ivan Illich, in *H2O and the Waters of Forgetfulness: Reflections on the Historicity of “Stuff”* (1985), describes a sense of there being two different kinds of water: “H₂O” that is the industrial product that comes from the tap, and the “Water of Dreams” that represents iconic water in the landscape. Environmental writer Harold Fromm describes the cause of this split, and the perceptual challenge that this project intends to overcome: "... it becomes apparent that man has failed to see that now, as in the past, the roots of his being are in the earth; and he has failed to see this because Nature, whose effects on man were formerly *immediate*, is now *mediated* by technology so that it appears that technology and not Nature is actually responsible for everything " (1996, p. 35). By revealing and interpreting the continuum of infrastructure that connects humans to natural systems, the illusion of dual, separate human and natural systems is challenged, and a paradigm of human-nature integration is revealed.

This rejoining of humans and nature (really revealing their inherent integration) is not only addressed by observation of the infrastructure connections, but is also reinforced through art and story, recognizing the role of the intuitive and creative in healthy Partnership paradigms. In addition to the poem used throughout the journey, youth engage with simple ceremonial activities—for example, collecting water at different points on the journey for a water memento necklace. They paint images about what they like about the river in their visual journals using water collected from the Mississippi River, while riding a boat on the Mississippi River. They co-create a public

story of water on the GIS story maps, using their favorite photos and observations from the trip. All these elements are intended to build an emotional relationship and identification of children with the water and the river, reinforcing the emotional as well as physical connections of the campers with their human-natural water systems.

A Creative Practice to *Heal*: Accepting our Failure to Live in Harmony With Earth Systems, and Accepting and Forgiving Ourselves for that Failure.

Because of the age of the youth participants, human failure to live in harmony with ecosystems is treated with a light hand, in accordance with recommended practice for their developmental stage (Sobel, 2008). Still, the campers were exposed to issues of non-point source pollution such as yard waste, dog feces, road salt, and car fluids that can enter public waters, and the need for water treatment both before and after drinking. Campers are already well aware of “don’t pollute” messages and the fact that humans can and do damage ecosystems. This project aims to heal the dualistic division between humans and nature, blurring the boundaries between them to discover that they are integrated and interdependent. But the project also works to heal potential anxiety about human-caused environmental problems, through its focus on solutions, and the engagement between the youth and the water and environmental professionals they meet along the way that are working to improve human-environment relationships. (See Figure 3).

Figure 3. Campers at the Rain Garden

Campers learn from guides about how to improve human impact on the Earth.



A Creative Practice to *Learn*: Apprenticing Ourselves to Earth Systems

Along the way, campers learn how humans and natural systems work together to improve water quality for mutual benefit. At the start of the journey, they see how prairie and rain garden plants help slow and filter the water that enters the Mississippi River. They learn from watershed educators and water treatment plant specialists, how the water's journey through lakes helps further improve the quality on its way to the treatment plant. Even within the water treatment plant itself, they learn that a biological process of microbes growing on the carbon filters helps them perform better. Similarly, at the waste water treatment plant, bacteria help break down human waste and organic matter, in an enhanced natural process. The camp week includes a stewardship day, in which children plant native grasses and flowers in a campus wetland that intercepts storm water before it enters the Mississippi River. (See Figure 4). They learn that the wetland plants improve water quality and provide habitat. While planting, campers also bond with nature through encounters with toads and grasshoppers. The children are gentle with the plants as they put them in the spongy

soil, and some campers give the plants names. There is a sense that they are working (and playing) together with the plants to help the water and the wildlife.

Figure 4. Campers Planting

Campers learn how a wetland helps water quality and put in native plants to contribute their part.



Integrating the Story

On the final day of camp, youth present this integrated story of water to their parents using the GIS story maps and their artwork. (See Figure 5). This reinforcement of an integrated paradigm teaches them about the interconnectedness of systems, which will only be more needed in the future. For example, the emerging “One Water” movement of the U.S. Water Alliance (US Water Alliance, n.d.) is using an integrated systems approach to water by bringing sectors together, including watershed management, agriculture, and water utilities. Systems-based, integrated partnership education prepares the children for their career futures and their citizenship challenges.

Figure 5. A Camper Tells the Story

At the final exhibit open house, campers tell their parents the story of water they explored.



Education as Transformation

Earth Systems Journey is a kind of pilgrimage, intended to create an inner transformation in the participant, though the focus of the quest is for communion with the natural rather than supernatural. The practice of revealing interconnections across the urban water system by traveling water's path helps participants see their dependence on and partnership with Earth systems. The practice of healing human relationship with nature through acknowledging mistakes and challenges and then practicing stewardship to make amends helps participants create a constructive story to make peace with the past and move toward improved relations. The practice of learning by apprenticing to Earth systems shows how engineering can work in partnership with nature, using its methods and working within its limits. Program evaluations from camp showed that children's understanding of water systems increased, as did their sense that they know how to steward water and their identification as river stewards (Brigham & Mercer-Taylor, 2017). When children see

themselves as an integrated part of nature, they can envision a future of partnership and mutual benefit as they nurture and receive nurturance from the Earth to which they belong.

CONCLUSION

As humanity faces environmental crises and recovery, Partnership Studies and environmental studies can work together to examine and improve environmental paradigms to help us *see* our dependency on the Earth, *heal* our relationship to it, and *learn* from the Earth how to thrive within human-natural community. Both the Apprenticene paradigm and the creative practice of Earth Systems Journey work toward this end. Caring Ecology criteria are one way to integrate Partnership Studies and ecological understanding. The paradigm of Partnership Studies and its Cultural Transformation Theory provides one pillar: a foundation and vision for caring relations. Themes in the environmental movement regarding dualism vs. integration and the place of humans as subsystems of the Earth provide two more pillars that form a foundation of understanding our physical relationship to the world. The environmental view can help reveal the flexibility of Partnership Studies and suggest its application in ways that reflect integration vs. dualism and the position of humans in realistic and humble relation to nature's hierarchy of actualization. In turn, Partnership Studies can help complete new human-environment paradigms with a vision for a culture of mutual care between humans and the rest of nature.

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Jonee Kulman Brigham, AIA, is a Senior Research Fellow and Fellow of the Institute on the Environment at the University of Minnesota, creator of the “Earth Systems Journey” art-led environmental education model, an artist and leader of Full Spring Studio LLC, and a licensed architect. At the University, she works in the area of Green Schools and Environmental Education from an interdisciplinary design perspective. At Full Spring Studio, besides developing Earth Systems Journey, she creates public and studio art with a particular interest in infrastructure and story. Brigham is also a faculty member for the MS in Architecture - Sustainable Design Track in the College of Design and serves on the US Green Building Council - Minnesota Community’s Green Schools Coalition Executive Committee. Previously, Brigham worked at the University of Minnesota’s Center for Sustainable Building Research (CSBR) as a sustainable design researcher, guideline developer, and instructor. Before that, she practiced as an architect and environmental consultant and co-authored *Sustainable Design* for the National Council of Architecture Registration Boards.

Correspondence about this article should be addressed to Jonee Kulman Brigham at kulma002@umn.edu