ANALYZING THE PRESENCE OF A RELATIONAL FRAMEWORK IN ENVIRONMENTAL EDUCATION RESOURCES IN OREGON

by

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Community building and relationship development are impactful components of environmental education experiences. The relational aspect of learning in the outdoors significantly affects students, however, it is often not explicitly acknowledged. Many fields have seen a relational approach being used in recent years, and others such as feminist care ethics and Indigenous ethics have emphasized the importance of relationships through relational frameworks for a long time. While this knowledge has been used thoroughly in other aspects of environmental studies, the understanding of the extent to which a relational framework has been used in environmental education is limited.

My research seeks to address this knowledge gap by answering the question: how do relational frameworks manifest in environmental education resources in Oregon and what does this bring to the field? To answer this question, I articulate a relational framework and then conduct a literature analysis of seven environmental education resources, such as curriculum guidelines and conceptual frameworks, used in Oregon. I conclude that while components of a relational framework are found in environmental education documents in Oregon the full extent of a relational framework is not truly represented. A more thorough integration of a relational framework in environmental education could help further the impacts that have been observed by educators and researchers alike.

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Section 1: Relevance of relational frameworks to environmental education

"The natural world is…a good and wise teacher. We must experience and be involved with nature because all healthy relationships require active participation" (Etherington, 2023, p. 32).

1.1 Introduction

Growing up in Oregon, my time in elementary school was full of experiences with more-than-human nature. My teachers often took us outdoors to learn – planting gardens, raising chickens, reading under huge oak trees, and walking through the protected forest land that backed up to the playground. As an eight-year-old, this did not seem uncommon to me, in fact it made perfect sense. Why would we sit at desks for reading time when we could sit in the grass and observe the silkworms as well? While I did not think much of this at the time, these are some of my clearest memories from my early years in school.

In 1990, the National Environmental Education Act was passed at the federal level with the goal of providing national leadership for increasing environmental literacy (US EPA, 2012). And in 2016, Oregonians voted to pass Ballot Measure 99 which would allocate funds from the state lottery to give all fifth and sixth grade students in the state access to a week of outdoor school (Friends of Outdoor School, n.d.). Overall, throughout the last fifty years, the United States has seen an increase in how environmental education (EE) is prioritized for students (Carter & Simmons, 2010). Organizations like the North American Association of Environmental Education (NAAEE) have grown in size and provided expertise for educators themselves.

The NAAEE describes how

> Environmental education recognizes the importance of viewing human interconnectedness within the environment, incorporating an examination of human systems (e.g., economic, cultural, social, and political systems) and natural processes and systems (p. 9).

These tenants greatly reminded me of the concepts of relational values and care ethics that I have studied in philosophy courses throughout my undergraduate career. At the same time that I was considering what I was interested in writing my honors college thesis on, I began to research the connections of relational values and EE. To me there seemed to be an inherent connection between these two fields of thought. However, I found few results that explicitly discussed the connection of the two fields when researching this[1]. This surprised me and prompted me to explore this topic myself. After doing preliminary research and considering different scopes for the project, I decided that looking at educational resource documents would enable me to find the most realistic sampling of a how relationality is actually occurring in EE. Thus, the guiding question for this project is: how do relational frameworks manifest in environmental education resources in Oregon and what does this bring to the field?

1.2 Methods and structure

In this study I use the term "relational framework" (RF) to refer to relationality that is informed by multiple academic disciplines and epistemologies. To articulate a RF and demonstrate what a RF entails, I search relevant literature and begin with literature describing the relational turn in sustainability science for it offers an overarching description of a RF in the realm of environmentalism. I conduct a review of literature on the relational turn in sustainability science to better understand the conditions of a RF. This was important in explaining the justification for my research, and after this I chose specific approaches to focus on within a RF.

[1] The sources I did come across include: Britto dos Santos and Gould (2018), Kleepsies (2021), and Quigley and Lyon (2017).

These approaches include relational values, feminist care ethics, and Indigenous ethics and I used conceptual literature to further understand and delineate a RF. To do this I worked through the texts pulling out the author's definitions of a RF and any other relevant descriptions about the frameworks they discussed. All of the research reviewed and interpreted in this section makes use of an interdisciplinary approach and is written by authors from different backgrounds. Interdisciplinary scholarship is important here for it shows how current researchers are acknowledging the importance of a RF across multiple scholarly disciplines.

Section 2 synthesizes my findings from this review and produces a synthesis of a RF that I use for the next steps of my research. To synthesize a RF in this way I made a list of the most salient aspects of a RF and created an explanation for each aspect that was informed by the literature I analyzed previously in Section 2. Next, I provided specific examples that were applicable to EE for each of the twelve aspects in the list as well. After creating this list, I grouped these twelve aspects into nine categories[1] based on their similarity to one another and way they might occur in the literature. I color-coded each category for readability and to create a manageable way to annotate the resource documents I would be using (represented in Table 1).

After this, I analyzed and synthesized the foundational materials in EE to determine current best practices in the field. My intention here was to see if a RF was being referenced as important in EE and what this looked like. After researching best practices in EE, I used the Oregon State University (OSU) Extension Service website which houses information about the Oregon Outdoor School Program (discussed in Section 3.5.1) to do a search of EE resources. Given the breadth of the Outdoor School program, I have used the resource data base on the OSU Extension Service website to compile a list of ten applicable resources, seven of which I

[1] These categories are determined in Section 2 and then they are indicated in the text using quotation marks (e.g. "category 1").

analyzed. Three resources were left out due to inaccessibility or lack of applicability to the project after further reading. The seven selected resources fit my criteria to be used in the sample for this project. My criteria for selecting resource documents were two-fold: firstly, I used documents that were accessible to me as many were behind paywalls, and secondly, I used documents that came from reputable sources within the field using only those that were included in the OSU data base. After obtaining the seven different resource documents that were feasible to use in this research, I annotated each one for references to a RF using the categories of a RF I had previously identified. For this step of the process, I highlighted references using the color coding that is shown in Table 2. The intention of this was to determine how a RF manifests within the categories of a RF in a sample of EE resources that are promoted as being useful to educators.

After multiple rounds of reviewing the resource documents to ensure correct annotations I collected quantitative data of how many references of each RF category occurred across all of the resource documents as well as a total calculation of references to a RF in each document being used. I then interpreted this information and analyzed the potential implications it has for the field of EE and made recommendations for supporting the integration of a RF in EE.

Section 2: Articulating a relational framework

2.1 The relevance of relationality

As a species, humans are social beings. We interact with one another frequently and have a great reliance on other people. The bonds that are formed through these interactions generally lead to some of our most positive memories and prompt us to value the time, energy, and emotions that we pour into the social interactions in our lives. This reliance on others and mutual benefit found in interactions is the central component of a relational framework.

It is also widely accepted that people also can form relationships with nonhuman species, such as animals. As the common saying goes, a dog is a man's best friend. However, beyond domesticized animals, many people in present-day America look beyond other more-than-human species as having the ability to be present in a reciprocal relationship. Furthermore, relational approaches have not historically extended into disciplines such as conservation or sustainability. Although the importance of relationality has been expressed through concepts such as relational values and care ethics, which are discussed further in Section 2.3, mainstream environmentalism has yet to embrace relationality fully as a conceptual framework. Walsh et al. (2021) describes how "relational approaches are marginalized within sustainability scholarship, despite the broad academic interest in relationality emerging across other fields" (p. 80). They insist that sustainability scholars and practitioners alike must work to increase relationality. Similarly, Ghijselinck (2023) discusses the attention that relationality has been given in recent times and expresses hope for how conservation can intertwine relationality more fully into its practices. While relationality is not entirely new in the environmental discourse, scholars started putting it at the core of their research only recently. There is still a long way to go to make relationality a mainstream perspective.

Many other cultures and time periods have seen great amounts of respect and importance given to relationality. Indigenous communities especially understand the interconnections that persist amongst humans and more-than-human nature and many tribes see more-than-human creatures as family (Whyte and Cuomo, 2017). Colonization by Western Europeans broadly eradicated this normative understanding of being in kinship with other more-than-human species (e.g. the Klamath Tribe and salmon). Looking both to Traditional Ecological Knowledge (TEK) and biological sciences, we can observe that people are a part of the wider natural ecosystem that is the biosphere.

Although conservation and sustainability have not previously centered relationality in their work, there has been a shift towards incorporating these practices within communities in academia and research in recent years. West at al. (2020) indicated that a paradigm shift is happening in sustainability science towards what they call "relational turn." They say:

> Sustainability scientists are therefore increasingly engaging with research associated with the 'relational turn' in the humanities and social sciences, as a means of revising substantialist assumptions and better capturing the complexity of human-nature connectedness…

They describe how a "relational turn" does not "refer to a single, unified approach" (ibidem, p. 305), but takes a variety of forms across disciplines, such as the humanities and ecology, and encompasses different "commitments, theories, and ideas". Using all these different approaches, relationality can impact sustainability significantly as Walsh et al. (2021) highlights.

As described above, this shift has occurred in multiple fields within the humanities and social sciences including but not limited to sustainability science, economics, and biodiversity protection. While each field brings its own approach and differences in how this shift is understood and implemented, the commonality amongst many scholars is the attention paid to the importance of relationality (e.g. Cooke et al., 2016; Heikkurinen et al., 2021; Walsh et al.,

2021). Relationality means a focus on the interconnections between humans and more-than-humans and the mutual opportunity to thrive for both communities. It also refers to nature in terms of dynamics, processes, and relations rather than things, substances, and entities.

2.1.1 The example of a relational turn in sustainability science

West et al. (2020) provides a comprehensive narrative review of the turn to relationality that has been seen broadly in sustainability science. This paradigm shift aims to"[produce] a useful synthetic and reflexive piece that identifies the many different ways in which sustainability scientists are drawing on relational thinking" (West et al., 2020, p. 306). West et al. (2020) identified four themes in relational thinking, "continually unfolding processes; embodied experience; reconstructing language and concepts; and ethics/practices of care" (ibidem, p. 306). The authors then used these themes to examine how various scientists made connections to a relational approach within sustainability science.

The four themes described in West et al. (2020) show the breadth and diversity that is included in relational thinking. Firstly, the theme continually unfolding processes speaks to the understanding in relational ontologies that nature is "in a perpetual state of becoming" (ibidem, p. 310). It describes how while entities within nature are acknowledged they are also understood to be made up of various processes and events. Next, embodied experience accounts for the aspect of relational thinking which describes how existence is made up of experiences. Both humans and more-than-humans are fluid and affected by the encounters and experiences they have in their lives and these things expand their knowledge and condition. Thirdly, reconstructing language and concepts refers to the shift in language and concepts that many relational thinkers deem a necessary action to make language and concepts more useful tools for navigating the world. Finally, the theme of ethics/practices of care builds upon the foundation

that is built by the other themes of relational thinking. This theme encompasses the idea that if experience and processes are dynamic and changeable than an intervention is necessary to create more ethical systems and experiences for one's self and others. The four themes identified by West et al. (2020) articulate different components of relational thinking thoroughly and the researchers provide useful examples for each theme that are then referred to throughout the rest of their work.

Through their narrative review, the researchers articulated a relational framework as "[expanding] agency beyond the human (Whatmore 2002) and distribut[ing] it within relational networks, assemblages and configurations (Latour 2005)" (ibidem, p. 310). Furthermore, West et al. (2020) explain how relational thinking has multiple implications including "fram[ing] knowledge as a product of our practical engagement in the world, and draw[ing] attention to the purposes and commitments, tools and concepts and empirical experiences that shape this engagement" (ibidem, p. 318). Engagement with the world and learning through this engagement is an important component of relationality that is discussed further below. By emphasizing the importance of lived experiences as a part of an individual's knowledge base, West et al. (2020) show the benefit of the relationship's that individuals foster and the ways in which they make use of their time. Researchers highlight the action of "practical engagement in the world" as essential to contributing to a relational framework (RF). They explain that RFs are highly applicable as most people are engaged in the world in the same ways.

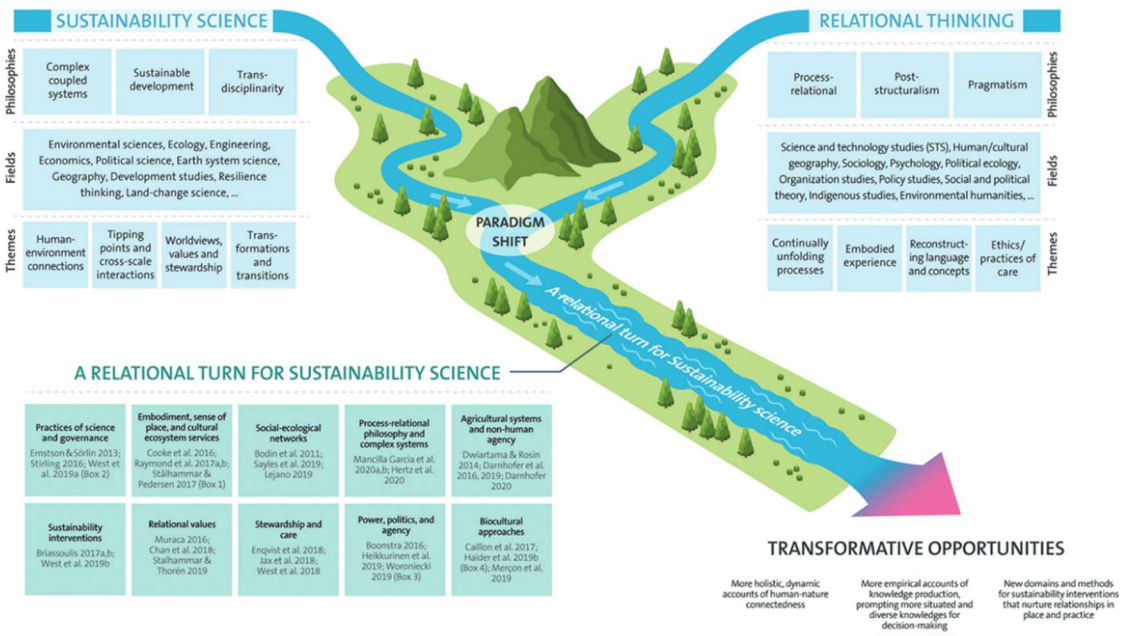

Figure 1: Paradigmatic shift from West et al. (2020)

West et al. (2020) use this depiction of a river confluence to show how a relational turn has occurred specifically in sustainability science. The diagram encompasses some of the many sub-categories in the humanities that have been a part of this broader shift. Additionally, the diagram lists the wide breadth of disciplines that actively use relational thinking –many of which are relevant including Indigenous studies, environmental humanities, and political ecology. The paradigm shift described by West et al. (2020) is shown here as a conjunction of sustainability science and relational thinking. The key component that is conveyed via the diagram as a part of the relational turn that West et al. (2020) explore is the relevant academic literature. Many examples of literature that has been written indicating the paradigm shift are shown in the diagram and grouped into ten categories. However, two of the categories stand out in regard to this research – "relational values" and "stewardship and care". I investigate both of these topics further using some of the works that West et al. (2020) show as being important (e.g. Chan et al 2018, Jax et al., 2018, and West et al., 2018).

Figure 2: Literature exemplifying a relational turn from West et al. (2020)

To West et al. (2020), a turn to relationality within sustainability science shows the power that a RF can have in approaching complex problems. By acknowledging the inherent interconnections between humans and the environment, a RF has the ability to reduce the perceived separation that has been created in fields including but not limited to sustainability science.

2.1.2 The IPBES approach

Another important step towards establishing a relational framework is the Intergovernmental Science-Policy Platform on Biodiversity and Ecological Services (IPBES) approach. IPBES is an independent inter-governmental body which works to strengthen "the science-policy interface" that is working on biodiversity protection and ecosystem services (IPBES, n.d.). IPBES also presents relational values as being imperative to include in the discussion of biodiversity protection research. The IPBES conceptual framework includes three types of value systems: intrinsic, instrumental, and relational values. It calls for the inclusion of

all three valuation types for "value pluralism" which can aid in decision-making within biodiversity protection and political actions (IPBES secretariat, n.d.). Including relational values in this framework show the importance and applicability of relational frameworks within environmental work. Additionally, the IPBES 2030 work programme includes "strengthening knowledge foundations" as one of its six objectives. Within this objective, they aim to increase the inclusion of Indigenous and local knowledge systems within IPBES and acknowledge the unique characteristics of this knowledge systems. IPBES prioritizing the inclusion of knowledge systems that use RFs in their work shows the organizations dedication to promoting the use of relational thinking.

2.1.3 RFs and care

RFs are used in many other instances outside of environmental work as well, and this points to their importance and necessity. One example is the Bogotá Care Blocks in Colombia. This framework validates the work primarily of women who spend immense energy and resources caring for others. The Care Blocks "centralize key services for female caregivers to improve their well-being and to reduce the time women dedicate to unpaid jobs/tasks" (*Bogotá Care Blocks - Observatory of Public Sector Innovation*, 2022). Using a RF in this way honors the work that many women all of the world do. Often caring for another in this way is greatly undervalued, and the Bogotá Care Blocks are revolutionizing this.

The field of disability studies also prioritizes RFs and care. Scholar Leah Lakshmi Piepzna-Samarasinha has also presented RFs as essential in their book, *Care Work*, were they discuss the implications of RFs in disability justice. One of the ten principles that they describe is interdependence. Citing the pre-colonial understanding of "the nature of interdependence within our communities" (Piepzna-Samarasinha, 2018, p. 28) they express the importance of using an

RF when working towards justice and liberation. Further, Piepzna-Samarasinha acknowledges the inclusion of more-than-human ecosystem elements within their writing saying "We see the liberation of all living systems and the land as integral to the liberation of our own communities, as we all share on planet" (ibidem, p. 28). Demonstrating how other fields, such as disability studies, embrace RFs as essential to their own work on care shows the applicability of RFs to EE.

Many disciplines acknowledge relationality and practice principles that align with a RF– even if they do not directly label their work as a RF[1]. In the following sections I will explain what a RF entails, offer examples, and articulate an understanding of the framework that is most relevant to my research.

2.2 Examples of RFs in environmental literature

2.2.1 Stewardship

One example of the relational turn is the framing of stewardship practices as relevant and helpful to effectively sustaining the environment[2]. While stewardship also refers to a broad set of practices unrelated to the environment, its use in contemporary environmentalism arose during the latter half of the 20th century (Mathevet et al., 2018).

According to West et al. (2018) relational practices such as stewardship have more recently been expanded into sustainability science "to refer to the active shaping of trajectories of social-ecological change, in ways that are cognizant of complexity and support socialecological

[1] While this term is not common in everyday language currently, using it and providing descriptors can be a powerful way to help spread awareness and understanding. Just as other labels can be confining and at other times useful, there is the potential for the use of the term "relational framework" to be able to help one understand themselves and the world around them.

[2] It is critical to identify that indigenous communities have never willingly stopped practicing stewardship with the land. However, there have been numerous occasions in which it has been made illegal for these practices to be used, and this is discussed further in this section.

resilience and human wellbeing" (p. 30). Examples of stewardship practices are significantly diverse and found in many communities globally (Chan et al., 2016). This relational approach has been practiced by indigenous communities for millennia (dis. in McLeod et al., 2024), however, this conceptualization was undermined and the practices penalized by colonizers (Kimmerer, 2013).

In many areas of the globe affected by colonization, ecosystems were depleted of their natural abundance and harmed by the practices of colonizers. Often times, the settlers desired the resources the ecosystems held but ignored the necessary respect and reciprocal obligations with the land that had been maintained by the Indigenous communities who had long resided there (Gershon, 2020). This is described by Whyte (2018) as the interruption of Indigenous 'collective continuance'. Whyte defines collective continuance as "a value that is similar to social resilience in its relationship to self-determination" (Whyte, 2018, p. 126) and informed by the Anishinaabe intellectual traditions of interdependent relationships, systems of responsibilities, and migration (ibidem, p. 126). Practices of settler-colonialism have continually interrupted and undermined Indigenous collective continuance, leading to the depletion of these intellectual traditions. The mindset and practices that replaced Indigenous traditions as a result often framed more-than-human nature as "untouched" and "wild" and this change has framed traditional conservation (Gershon, 2020).

Alternative approaches to traditional conservation support the active integration of relationships into environmentalism. With the goal of returning to the stewardship practices that were commonly used before conservation practices became predominant, many groups are aiming to work with Indigenous communities to restore these practices. The paradigm shift seen

here is important given that a loss of connection to the natural environment harms people's health, well-being, and environmental attitude (McLeod et al. 2024).

2.2.2 Diverse knowledge systems

Another example that demonstrates the relational turn discussed by West et al. (2020) is the inclusion of differing knowledge systems to create a well-balanced basis of information. Relational approaches understand knowledge as "a product of our practical engagement in the world" (West et al., 2020, p. 318), which makes room for many kinds of knowledge to be seen as equally relevant. For example, Western science, Indigenous knowledge, and local knowledge have all been increasingly incorporated by various researchers into research practices into the field of sustainability science and biodiversity. West et al. (2020) describe the benefits that have been reaped from this aspect of the relational turn: "In fostering close attention to the ways in which knowledge is made, we found that relational thinking enhanced our awareness of the partiality of our own approaches" (ibidem, p. 318). Using a relational approach allowed researchers to question the short fallings of their own knowledge systems and provided them with options to address these issues. Additionally, this boosts a connection to knowledge systems and practices that have been ignored by Western science such as stewardship (discussed in Section 2.2.1).

2.3 The intersection of relational values and care ethics

2.3.1 Relational values and nature

Relationality is also discussed in regard to how the value of nature and people-nature relationships is determined. Environmental policy has long revolved around whether nature should be valued for its benefits to humans or in and of itself, and therefore it has mostly focused

on the value of nature in two main ways: nature for its own sake regardless of people and nature as means to people's ends. These two approaches are reflected in the concepts of intrinsic value and instrumental value (Chan et al., 2016) that represent different traditions of environmentalism (Martinez-Alier, 2020). Although these two forms of valuation each have their own strengths, it was evident that something was not being accounted for by either concept – the relationships amongst people and nature that are not solely expressed in terms of means-ends relations. To address this problem, scholars developed the concept of relational values that began being explicitly referred to in the literature in 2016 (Himes et al., 2021). Since then, many researchers (Chan et al., 2018, Deplazes-Zemp and Chapman, 2021, and Himes and Muraca, 2018) explored relational values as an effective option for addressing this gap and IPBES has introduced them into their conceptual framework (see Section 2.1.2).

The concept of relational values acknowledges that it is important to protect nature for its own sake *and* for the sake of people. Himes et al. (2021) present the prominent definition[1] of relational values as "Values of meaningful and often reciprocal human relationships – beyond means to an end – with nature (often specified as a particular landscape, place, species, forest, etc.) and among people through nature" (p. 6). Relational values encompass different expressions of how relationships with nature are relevant to people, including, for example, sense of place, individual and collective identity, and supporting social networks. Some examples of these are

1. Human responsibility to nature through stewardship
2. Cultural identity that forms through long-standing connections between people and animals (e.g. a shepherd and their sheep)

[1] This definition was determined as the core meaning of relational values formed using a systematic collection of literature which analyzed the salient articulation of relational values found within a wide variety of published literature.

3. Kinship relations between Indigenous communities and more-than-human communities (e.g. the Klamath tribe and salmon).

Moreover, relational values also refer to the meaningful experiences people have with others through engaging with more-than-human nature.

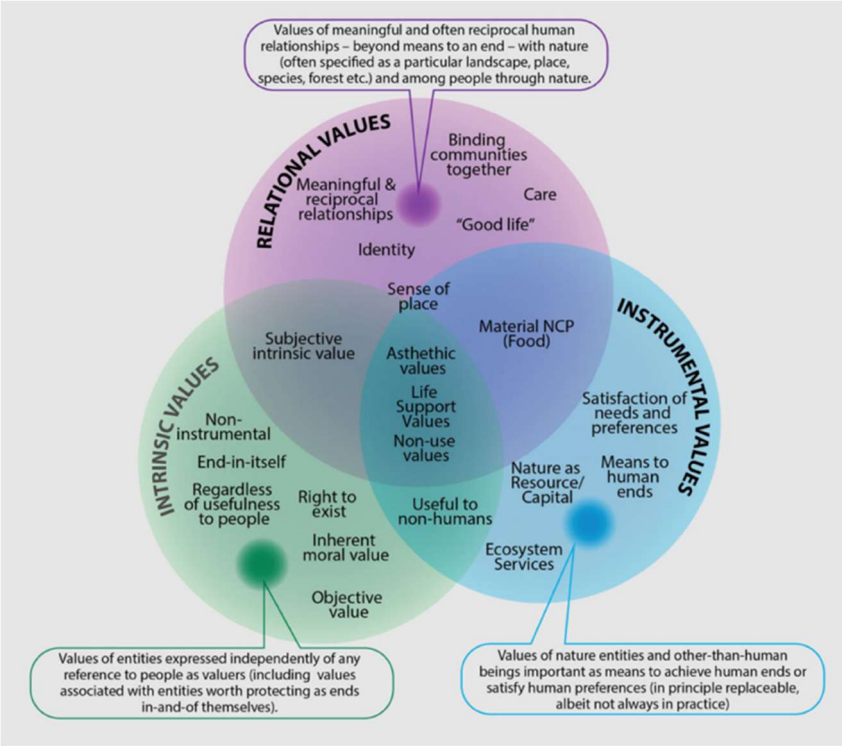

Figure 3: Value systems diagram from Himes et al. (2023)

This presentation of value systems that was created using the core meanings determined in the research conducted from the IPBES by Himes et al. (2023) shows the similarities and differences amongst the three commonly used value systems within environmental economics.

The importance of relational values is demonstrated by the large body of literature applying the concept to valuation studies, empirical research, and recommendations for policy makers. Applications in policy are especially salient, one example being environmental policy where it is just as important to consider relational values as intrinsic and instrumental values.

Chan et al. (2016) explain that relational values can prompt more effective environmental protection and stress how integrating relational values has the possibility to foster more productive and applicable policy. According to the authors this is because few people make personal choices based only on how things possess inherent worth or satisfy their preferences (intrinsic and instrumental values, respectively). People also consider the appropriateness of how they relate with nature and with others, including the actions and habits conducive to a good life, which are both meaningful and satisfying (Chan et al., 2018, p. 1463). IPBES has also advocated for the applicability of relational values to environmental policy in regard to biodiversity protection. In fact, the research conducted by Himes et al. (2023) was completed for the IPBES *Methodological Assessment of the Diverse Values and Valuations of Nature*, showing IPBES's dedication to understanding the extent to relational values connection to policy and protection.

2.3.3 Care ethics: a relational approach to understanding human well-being

Care ethics have been used to describe the importance of relationships amongst people, and as the moral theory has branched out it has also been applied to relationships between humans and more-than-human nature. The *Encyclopedia of Philosophy* explains that care ethics "impl[y] that there is moral significance in the fundamental elements of relationships and dependencies in human life" (Encyclopedia of Philosophy, n.d.). Bernice Fischer and Joan Tronto, who have written important interdisciplinary literature on the matter (Care Ethics, n.d.), explain care as "a species activity that includes everything that we do to maintain, contain, and repair our 'world' so that we can live in it as well as possible. That world includes our bodies, ourselves, and our environment" (Fischer & Tronto, 1990, p. 40). While this is a broad definition, it encapsulates many of the important ways that care plays a role in our lives. Additionally, Fischer and Tronto highlight the applicability of care to both interpersonal

relationships amongst people as well as those between people and the environment. Both indigenous and feminist ontologies employ care ethics, and although these two fields are quite different, they share this perspective.

2.3.4 Caring in feminist and Indigenous ethics

The fields of Indigenous ethics and feminist care ethics both offer useful understandings of care that is highly applicable to environmental ethics. These three disciplines often intersect and examining the outcomes of these intersections offers useful perspectives that can be applied to one another. In the following paragraphs I will examine how Indigenous and feminist ethics conceptualize and practice care, as well as how these understandings can be applied to environmental ethics.

The framework of Indigenous ethics addresses the applicability of care to both people and more-than-human nature. Indigenous knowledge, specifically stewardship, has been described in academic literature such as Whyte and Cuomo (2017). The authors explain that stewardship "refers to acknowledgment of one's place in a web of interdependent relationships that create moral responsibilities" (Whyte and Cuomo, 2017, p. 10). Individuals are situated within a greater network of other beings and this research shows how stewardship stems from the moral necessity relating to one another[1]. Further, Whyte and Cuomo (2017) describe how stewardship has "methods and forms of expertise involved in carrying out such responsibilities" (ibidem, p. 10) which points to the intrinsic care within stewardship. The precision and awareness that one must use when being in relation to others is very important. Whyte and Cuomo (2017) clearly show that stewardship is a notable component of indigenous environmental movements.

[1] This aligns with the description of stewardship in Section 2.2.1

The elements of "indigenous knowledge, responsibility, reciprocity, and moral repair" (ibidem, p. 9) are central to indigenous care ethics as well. Using examples such as the Stewards Symposium, The Anchorage Declaration, and The Water Declaration of the Anishinaabek, Mushkegowuk, and Onkwehonwe (written by the Chiefs of Ontario) (ibidem) the authors communicate the centrality of how "Indigenous peoples' understanding of interdependence forms the basis for justifying and motivating ethical responsibilities in human and ecological communities" (ibidem). Whyte and Cuomo's (2017) research aims at identifying the components of an indigenous care ethics that entail relationality, reciprocity, and stewardship. Moreover, care refers to the recognition and learning that comes from being a part of the web of relations they explore and of the responsibilities that are a part of these relationships (ibidem, p. 13)

In addition to indigenous care ethics, feminist care ethics provide an articulation of care. One thorough description of explains that the following tenants are central to feminist care ethics:

> moral orientations that (1) understand individuals, including human selves and other beings, as essentially embedded and interdependent, rather than isolated and atomistic, even if they also exercise some degree of autonomy; (2) take mutually beneficial caring relationships to be foundational and paradigmatic for ethics (ibidem, p. 16).

From this example it is evident that relationships are central to feminist philosophy. The two conditions described are prominent regarding the definition of a relational framework. Jax et al. (2018) also explores how care has been articulated within feminist care ethics literature. The authors emphasize the applicability of care to relational values and seek to explain what this connection truly means. To do this, the concept of care is synthesized specifically for nature within feminist theories, indigenous approaches, and environmental philosophical approaches. This interdisciplinary perspective is the foundation of Jax et al.'s (2018) work. With this synthesis, the authors then present "elements of a framework of caring for nature". The research

shows that "[many benefits] derive from positive agency including caring for nature" (Jax et al., p. 2). This is in contrast to an anthropocentric ideal that nature's purpose is to serve humans.

It has been shown that the act of caring for nature is central in the feminist care ethics ontology. Since this is the case, Jax et al. (2018) explain that relational values can be better understood when examined through the lens of feminist care ethics. Jax et al. (2018) state that "Relational values…express relations that are constitutive of a good life, i.e. a life worthy of human being, in which not merely surviving, but thriving, can be achieved" (ibidem, p. 3). The emphasis on surpassing a level of "surviving" and achieving a state of "thriving" is notable in this articulation. The authors also explain how "care-oriented approaches emphasize dependencies, reciprocity, and the highly relational character of a human life" (ibidem, p. 5). While these specific passages are referring to the well-being of humans, Jax et al. (2018) are examining how both humans and more-than-human nature exist within a relational framework.

Additionally, these ontologies both show that care is intrinsically reciprocal. This means that to give care one must have also have received care and that these cycles persist throughout one's life. Jax et al. (2018) present this in their description of the impacts of feminist theories of care. Additionally, the authors write about the impacts of this concept saying that

> 'care for nature' is multi-faceted: it is focused on what humans do for nature (and specific natural entities) and at the same time it acknowledges that caring is rooted in the concept of a relational self and is thus a constitutive part of what it means to live a good, really human life (Jax et al., 2918, p. 9).

This statement captures the essence of their research wholly; pointing to the existence of a relational capacity that humans exercise both for each other and for more than human entities as a part of their lives. Caring for nature can be used to promote environmental conservation, and this is demonstrated by Indigenous and feminist care ethics. Care is a "fundamental attitude" (ibidem, p. 5) showing how an RF is rooted deeply in one's actions and attitude.

Both indigenous and feminist care ethics provide approaches to care ethics that show their applicability to environmental movements. Care ethics can offer a rich tool belt of strategies for environmental ethics and effective action as demonstrated in the research conducted by Whyte and Cuomo (2017) and Jax et al. (2018).

2.3 Synthesis of a relational framework

Key components of a RF are diverse and varied, however, there are similar components that can be observed across disciplines. As shown in Table 1, there is a variety of ways that humans and more-than-human nature relate to one another and these specifics are important to understanding RFs. There are nine prominent aspects of a RF that are found throughout the literature discussed in Section 2: processes/dynamics, networks, self-concept, health, caring, learning and transformation, community, kinship, and interdependence. In the following section, I present best practices in environmental education (EE) and with this understanding I will then examine the extent to which these categories arise in EE in Section 4.

Categories	Sub-categories	Explanations	Examples
Processes/Dynamics		Understanding the natural world as dynamic, always in becoming, made of events and not 'things'.	Change is central to understanding ecosystems and time is a backdrop to this – West et al. (2020).
Networks		Recognizing the interconnection of both human and more-than-human entities in natural ecosystems and seeing how these interconnections can affect the health of each group.	Mutualism between mycorrhizal mushrooms and trees in a forest.
Self-concept	Sense of place	How the place in which someone lives informs their sense of self and how they understand themselves individually and collectively. Identity, culture, and lived experience often impact how one understands themselves regarding to place.	Emotional attachment to the place someone spent the most time growing up; where someone considers 'home'.
	Identity	Relationships with nature that constitute who someone is often through cultural or spirituality.	Coastal communities whose livelihood is tied to the coast; Indigenous tribes whose cultural and spiritual practices are reliant on the more-than-human collectives around them.
Influence on health		Positive impacts of interactions with or in nature on the human condition	Biophilia hypothesis – Kellert and Wilson (1995).
Community		Being in nature as an opportunity to form connections with other people and/or interactions with nature forming and strengthening interactions among people.	Hiking groups; retreat centers in rural areas; parks in urban areas as gathering spaces.
Caring	Moral responsibility	An ethical attitude that centers obligations towards other humans and more-than-humans.	Reducing single-use plastics to prevent waste that harms obligations towards other humans and more-than-human others and considers the consequences of one's decisions on other communities.
	Practices of Care	Feelings of concern and the resulting action taken to support another human or more-than-human which are rooted	The removal of various dams throughout the western United States as a

		in the intrinsic interdependence of communities.	result activism showing the harm that they were having on both more-than-human and human species alike
Learning and transformation		Interactions with nature that offer the opportunity for humans to learn new things, develop new values, or experience personal growth through hands-on experiences with the environment.	Gardening as a means to learn about plant growth and expanding one's own connection to the more-than-human world.
Kinship		Connections between humans and more-than-human nature that are familial and often spiritual where more-than-human others are considered kin as in many Indigenous communities.	The Lummi people's relationship to orcas that they refer to as "relatives under the water".
Interdependence	Stewardship	Responsible management of more-than-human nature by humans that prioritizes sustainable practices to support ecological resilience, longevity, and the well-being of both humans and more-than-humans.	Caring for the land where one grows their food – "The Honorable Harvest" by Robin Wall Kimmerer.
	Reciprocity	Mutual welfare and mutual obligations that are a part of the relationship that exists between human and more-than-human communities.	Gift economies that lead to mutual flourishing – *The Serviceberry* by Robin Wall Kimmerer

Table 1: Categories within a RF

Section 3: The history of environmental education and best practices

3.1 Environmental education (EE) as a time capsule

EE has been practiced in various capacities across the globe for many years (Etherington, 2023). However, it was not until the twentieth century that best practices in this pedagogy were outlined and accepted (Carter and Simmons, 2010). In "The History and Philosophy of Environmental Education", the authors describe that while EE pedagogy can be traced back farther, the 1970s was "a major turning point in EE internationally" (Carter and Simmons, 2010, p. 5). While the field of EE is only fifty years old, the establishing conversations outlining environmental education are still relevant today. This work includes that of Bill Stapp et al. (1969) as well as the Tbilisi Declaration both of which are still consistently used by notable EE organizations and professionals (Intergovernmental Conference on Environmental Education and Sustainable Development, 2012; United Nations, n.d.; Wright, 2004).

The longevity of EE's foundation contrasts the many evolutions that educational curriculum has undergone in the United States during the same time frame. These evolutions include things such as the No Child Left Behind act (White House Archives, n.d.), the introduction of "Common Core" curriculum (Greer, 2018), and the beginning of digital literacy being taught in classrooms (Qomaria Agistinia, 2020). EE foundations introduced fifty years ago have been continued and adapted by groups such as the North American Association of Environmental Education (NAAEE). The combination of the work of Bill Stapp, the Tbilisi Declaration, and the Guidelines for Excellence written by the NAAEE provide best practices for environmental education (Carter and Simmons, 2010).

3.2. Environmental Education Objectives

Bill Stapp was a professor at the University of Michigan and his work is imperative to the understanding of EE best practices today. As an author in the inaugural issue of the *Journal of Environmental Education*, Stapp "enumerated the societal necessity for EE and identified objectives of the nascent field" (Carter and Simmons, 2010 and Stapp et al., 1969). Stapp and his graduate students[1] define EE as

> Aimed at producing a citizenry that is knowledgeable concerning the bio-physical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Stapp et al., 1969, p. 31).

While this definition is broad, the article also provides "major objectives" of EE which are:

1. A clear understanding that man (sic) is an inseparable part of a system, consisting of man, culture, and the biophysical environment, and that man has the ability to alter the interrelationships of this system.
2. A broad understanding of the biophysical environment, both natural and man-made, and its role in contemporary society.
3. A fundamental understanding of the biophysical environmental problems confronting man, how these problems can be solved, and the responsibility of citizens and government to work toward their solution.
4. Attitudes of concern for the quality of the biophysical environment which will motivate citizens to participate in biophysical environmental problem-solving.

As these objectives were included in the very first edition of the *Journal of Environmental Education,* they have had an influential role in readers' and practitioners' understandings of EE (Carter and Simmons, 2010).

[1] In his article in the Journal of Environmental Education Stapp credits his graduate students as being integral to the understanding of the ideas he presents, most of which were developed in a graduate seminar at the University of Michigan.

3.3 The 1977 Tblisi Declaration

Advancement of the field of EE through both pedagogy and practice continued into the 1970s with the creation of the Tbilisi Declaration. This declaration was the culminating product of a 1977 meeting of the United Nations Intergovernmental Conference on Environmental Education which was hosted by the United Nations Education, Scientific and Cultural Organization (UNESCO) in Tbilisi, Georgia. The goals of the conference were to

> raise awareness of environmental problems and their implications for society; emphasize the role of education in addressing environmental problems; assess national and international efforts and achievements in environmental education; pinpoint strategies for further development in the field; and underscore the global nature of environmental issues and the attendant need for cooperative efforts at regional and international levels to develop and implement environmental education (Newman, 2011, p. 356).

From these goals, the conference produced a final declaration made up of 41 recommendations regarding how EE should be implemented and conducted. The first few recommendations note the goals of EE which are

> to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas; to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; [and] to create new patterns of behavior of individuals, groups and society as a whole towards the environment. (Newman, 2011, p. 356).

The other recommendations relate to objectives, principles, and implementation practices of EE.

The Tbilisi Declaration has had a widespread impact on the move to prioritize EE initiatives on the international stage (Newman, 2011). Additionally, Tbilisi Conferences have been held regularly since the initial conference in 1977. Many of the constituents continue to acknowledge the impact that the Tbilisi Declaration has had on EE. For instance, the Tbilisi Communiqué that was produced at the 2012 conference refers to the Tbilisi declaration multiple times and it explains that

> The objectives outlined at the 1977 Tbilisi Conference – namely awareness, knowledge, attitude, skills and participation – are still valid today, and the main goal aligning human behaviours, actions, practices and social conditions towards a sustainable future has yet to be achieved (Intergovernmental Conference on Environmental Education and Sustainable Development, 2012, pp. 1-2).

As a result, this declaration that was created on the international level has long had impacts on EE initiatives globally. However, as the Tbilisi Communiqué notes, the main goal of the Tbilisi Declaration has not yet been achieved calling for a continuation of this work. Organizations such as the North American Association of Environmental Education (NAAEE) are presently working to address this issue.

3.4 Guidelines for Excellence

The NAAEE is a large organization supporting EE, providing curriculum support, training for educators, non-partisan policy support, and a job board. Similarly to Stapp et al.'s work and the Tbilisi Declaration, the NAAEE was founded in 1971, and since then they have been a "leader in promoting excellence in environmental education throughout North America" (NAAEE, 2021, p. 2). The organization has also hosted a national conference and research symposium yearly since 1972 as well. This organization was started by a group of educators who were concerned about how EE materials were being developed and wanted to provide further guidance (Carter and Simmons, 2010). Amongst offering many other forms of support for educators, policymakers, and supporters the NAAEE makes guidelines for excellence that can be referred to in the creation and application of EE.

With the creation of the National Project for Excellence in Environmental Education in 1994, there have been multiple iterations of the Guidelines for Excellence. Each set of guidelines uses best practices gathered from many fields and includes information about "formal and nonformal education, curriculum development, instructional design, early childhood education

and adult education" (NAAEE, 2021, p. 7). The guidelines also differ in focus, providing a robust collection of information that can be easily accessed and drawn upon. The most recent Guidelines for Excellence for EE Materials was created in 2021, and they outline the following as the key characteristics for excellent EE materials.

1. Accurate and Inclusive
2. Emphasis on Skills Building
3. Depth of Understanding
4. Personal and Civic Responsibility
5. Instructional Effectiveness
6. Usability

Further detail is provided for each key characteristic throughout the document making the guidelines well-rounded and specific. However, this concise list can broadly represent EE best practices for materials specifically.

With the continued collaboration of environmental educators alongside updated publications of guidelines, the NAAEE continues to be an important support system for EE. The organization is responsive to changes in the field and provides widespread support for many people involved in EE. They have been instrumental in providing updated best practices in the profession.

3.5 Synthesis of EE best practices

Many people have contributed to how EE has evolved in the United States over the last fifty years, including but not limited to Rachel Carson, Steward Udall, and Aldo Leopold (Carter and Simmons, 2010). However, the work of Bill Stapp, the Tbilisi Declaration, and the NAAEE's Guidelines for Excellence are essential to the foundation of EE. Fifty years after their

creation these sources continue to be pivotal in the development of EE materials today, and the best practices described in these documents are diverse yet succinct.

From reading and analyzing these materials it became clear that there are three consistent best practices being exhibited in the EE materials: people as a part of ecosystems, personal and community responsibility, and opportunities for learning. While presented in a variety of ways across the documents, Table 2.2 synthesizes these practices and provides an explanation and example for each one.

Category	**Explanation**	**Examples**
People as a part of ecosystems	The interconnection of humans and the more-than-human natural world and the symbiotic relationship that exists as a part of this interconnection.	Curriculum about food systems and the origins of certain foods; teaching about global warming and how greenhouse gas emissions effect this.
Personal and community responsibility	All people play a role in environmental protection through both small and large actions. It is our responsibility as individuals and community members to be intentional with our actions in order to not harm more-than-human communities.	Teaching leave-no-trace principles as a part of instructions and expectations for a field trip to a natural area.
Opportunities for learning	The chance for humans to learn new things, develop new values, or experience personal growth through hands-on experiences with the environment.	Providing a chance for students to be hands-on with the subject they are learning about and experience personal interactions with the subject.

Table 2. EE Best Practices synthesized from the Tbilisi Declaration, Bill Stapp's work, and the NAAEE Guideline's for Excellence

3.5.1 RF in EE Best Practices

A RF is noted in all three of the relevant sources that were used here to portray the meaning and influence of environmental education. A relational framework is called for in Stapp's first objective of EE. The first objective is "A clear understanding that man (sic) is an inseparable part of a system, consisting of man, culture, and the biophysical environment, and that man has the ability to alter the interrelationships of this system" (Stapp et al. 1969, p. 31). Stapp et al. (1969) directly acknowledges the relevance of relationships in their very first objective, highlighting the necessity of this framing for EE.

The Tbilisi report highlights RFs in EE as well. One of the goals of EE as described in the Tbilisi report is "to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural area" (eePRO, n.d.). Calling for an understanding of the interconnections between various intersecting systems, including ecology, shows how central a RF has been outlined to be via the Tbilisi Declaration.

In the NAAEE's Guidelines for Excellence this is portrayed when they explain that one of the "essential underpinnings" of EE is systems and systems thinking (NAAEE, 2021, p. 10). Additionally, key characteristic #3, "depth of understanding", notes "Learners explore the interdependence of all life forms, including humans, and are given opportunities to increase their awareness of how environmental, social, and economic systems are interconnected" (NAAEE, 2021, p. 46). This shows the importance of communicating the relationality of systems to students.

From this it can be observed that RFs are present within the EE best practices outlined in the foundational documents of the field of environmental education. Furthermore, these best practices reflect the key tenants of a RF which were demonstrated in Table 1. This is substantial

given that these best practices are recommendations by experts in the field, showing the importance of RFs in EE.

While all three of these works note the importance of implementing a RF, there is limited research that has been conducted on the implementation of a RF in EE (Britto dos Santos and Gould, 2018). To understand the depth of the affect that these best practices have had on EE and to determine to what extent an RF manifests in EE programming currently in Oregon, I will be examining EE resource documents provided by the Oregon State University (OSU) Extension Service. The OSU Extension Service houses information regarding Oregon Outdoor School, which creates opportunities for all fifth or sixth graders in the state to have an opportunity to attend an outdoor school experience. Measure 99 was passed by Oregonians in 2016 and has since allocated funds from the state lottery to support this program (Friends of Outdoor School, n.d.). It is important to note that although a RF is implicitly included in EE best practices as shown above, this does not necessarily mean it is always implemented into EE resources or curriculum. By reviewing these resources, a sampling of information on the depth and form in which a RF manifests in EE resources in Oregon can be obtained.

Section 4: The presence of a RF in EE resources

4.1 Documents of analysis

With the intent of providing relevant and applicable information that can be applied to the field of EE in Oregon, I examined EE resources cited by the OSU Extension Program's website. These resources ranged from curriculum frameworks to lesson plans and informative books. Although varied, these documents are relevant to the field in different ways and are likely used regularly by those practicing EE, making the resources valuable to my research. The resources I analyzed are:

1. AmplifyScience's "Environmental Literacy Curriculum Connections" (2021)
2. Blue Mountain Conservancy's "Nature Immersion and Awareness Activities" (n.d.)
3. National Oceanic and Atmospheric Association (NOAA)'s "Climate Literacy the Essential Principles of Understanding Climate Science" (2009)
4. Oregon Forest Resources Institute (ORFI)'s "Oregon Forest Literacy Plan" written by Leslie Comnes (2022)
5. Oregon Museum of Science and Innovation (OMSI)'s "Exquisite Creatures: Human-Creature Connection" (n.d.)
6. Project WILD's Conceptual Framework (n.d.)
7. "Why Nature Journaling?" in *Why We Teach Nature Journaling* by Laws et al. (2020)

To determine the extent of a RF in EE in Oregon, within these documents I highlighted phrases and objectives that are integral to a RF. To understand the extent to which a RF is present and how it is used in the field, I organized my annotations using the nine categories that make up a relational framework as described in Section 2.3.

4.2 Findings

There is variability across the seven documents examined in the depth and breadth of a RF. While a few of the documents strongly indicate the importance of a RF and others merely touch on a RF, all seven documents do contain elements of a RF in some capacity. The range of references to RF categories in these documents is from 47 to nine occurrences. In the following sections, I will describe how the occurrences of each category of a RF from Table 1 took shape within the resource documents. In the examples given below I have focused on more salient passages that display a RF and I have left out occurrences that were limited to a short phrase or lacked a more relevant context.

4.2.1 Quantitative findings

The quantitative findings of this research are shown in Table 3. They are divided by RF category as determined in Section 2.3. Occurrences that are representative of more than one category were counted for each respective category.

RF category	**Total relevant references found in resources**
Processes/dynamics	34
Networks	77
Self-concept	24
Influence on health	12
Caring	8
Community	5
Learning and transformation	31
Kinship	0
Interdependence	8

Table 3: Total occurrences of a RF found in the seven EE resources

4.2.2 Processes/dynamics

All seven documents that were analyzed indicated how more-than-human nature consists of dynamic processes and is not fixed. It is full of change and can be affected by other communities as well as events. In fact, this is often central to the existence of more-than-human nature given the interreliance that is necessary for survival for many organisms (see Section 4.2.1 for more on this). By sharing how processes/dynamics can be incorporated as a mindset for educators, this category can be applied in a broader sense to different topics within EE.

Some of the resources, such as *Why Nature Journaling?* by Laws et al. (2020) demonstrate how this understanding of more-than-human nature is not central to colonial approaches (described in Section 2.1). The authors explain that, "It is easy to slip back to inattention and to forget this impermanence. Each moment, each observation, is a singular gift that will never come again" (Laws et al., 2020, p. 8). This more meta-indication of nature as dynamic and made up of processes is presented in multiple sources as a way to frame the educational material that follows. This document displays a reference to this category of a RF from the onset and proposes it as part of a mindset for both educators leading activities and students participating in them.

Other resources demonstrate this category in a more direct way using ecological terms, describing how "Forest ecosystems are complex and dynamic, and continuously undergo change or adaptation, ranging from gradual change (e.g., succession and climate) to abrupt change (e.g., fire and disease)" (Comnes, 2022, p. 7). Referring to biophysical and ecological processes and the adaptive condition of nature is one way to include a RF in curriculum.

However, there is also a third option that meshes these two approaches. An example of this is the Project WILD Conceptual Framework where others explain "Succession is an orderly,

gradual, and continuous replacement of one natural community of life by another" (Project WILD, p. 3). While there is a strong reference to biophysical and ecological process present here, a wider approach is used indicating the replacement of a community by another that is representative of approach one.

Overall, the second approach was used most consistently throughout this sample of resources when indicating process/dynamics of nature.

4.2.3 Networks

Networks was the most highly mentioned category throughout this analysis with 77 total occurrences found. The resource documents refer to this category in two ways: as a general frame of the curriculum including a mindset or attitude or as more specific content to be presented to students (information, knowledge). The ways in which networks occurred were diverse, however, many of these occurrences were more vague in their discussion of a general way of being:

1. "Climate Science Literacy is an understanding of your influence on climate and climate's influence on you and society" (Global Change Research Program, 2009).
2. "Paying close attention to the world around us, instead of treating it as a mere backdrop, connects us with nature" (Laws et al., 2020, p. 7).
3. "Natural laws are ultimately as binding on human populations as on wildlife" (Project WILD, p. 2).

Other resources provide a more concrete reference and language that can be more easily incorporated into EE:

4. "The interconnectedness of Earth's systems means that a significant change in any one component of the climate system can influence the equilibrium of the entire Earth system" (Global Change Research Program, 2009).

5. “Plants and animals in ecological systems live in a web of interdependence, in which each species contributes to the functioning of the overall system” (Project WILD, p. 2)

6. These extensions provide students with the opportunity to…deepen understanding of plants’ needs and plant and animal relationships, as well as how people depend on natural systems” (The Lawrence Hall of Science, 2021, p. 8)

As shown here, multiple resources, such as the Project WILD Conceptual Framework, may use both approaches when integrating networks. This category is used in the document to provide both a framing and information for students.

4.2.4 Self-concept

Another category that is seen prominently across many of the resources, but not all of them, is self-concept. This indicates the different ways in which people understand themselves within the context of the rest of the world both for their identity and through their sense of place is central to this. One way that self-concept occurs is through the discussion of wildlife. This is exhibited in Project WILD’s Conceptual Framework as the authors situate how humans understand more-than-human nature explaining “Wildlife and its habitat are interpreted and treated differently by people viewing them from various cultural perspectives and frames of reference” (Project WILD, p. 5). The Project WILD Conceptual Framework goes further to indicate that cultural practices are often rooted in one’s self-concept. It explains “Human and wildlife relationships are expressed through legends, myths, religious teachings and writings, symbols, protocols, ceremonies, and other cultural and societal activities” (Project WILD, p. 5). This is important context for it shows how varied this RF category can be and the many different components that impact one’s self-concept.

The Oregon Forest Literacy Plan and “Why Nature Journaling?” both indicate the broader implications of self-concept in practicing EE by discussing how more-than-human

nature is relevant to EE. Bringing up human communities' connection to and reliance upon the forest is one way of showing how self-concept is ever present when people are with more-than-human nature. Some examples are: "Forests have always been – and continue to be – important to people who live on the land and within forest-dependent communities, including Indigenous peoples" (Comnes, 2022, p. 9) and "Students come to nature journaling with different experiences and different cultural perspectives on their relationship to nature and on being in the outdoors" (Laws et al., 2020, p. 8).

4.2.5 Influence on health

The influence on human's health is an important category within RF, for it demonstrates how many of the other categories (such as interdependence and community) have a tangible impact on humans. However, this category is not presented consistently throughout the literature I analyzed in a way that points to the relational aspect of more-than-human nature's influence on human health. The one salient example of this category that is not paired with another category is found in Project WILD's Conceptual Framework merely explains "The health and well-being of humans and wildlife depend on the quality of the natural environment" (Project WILD, p. 2).

4.2.6 Community

Community is one of the lower occurring categories of a RF throughout the seven EE resources examined here with only eight total appearances. *Why Nature Journaling?* makes the most consistent case for this category, accounting for half of the appearances across all of the resources. This resource discusses how nature journaling itself can be a way for students to become a greater part and participate more in their local communities. John Muir Laws and Lygren write "Students can also use their journaling to become active community members and engaged citizens of the world" (p. 5). Additionally, they point to how being outdoors with others

is an avenue for forming community as well. This is shown for example in the justification of nature journaling "Shared experiences of journaling and being in the outdoors build connection and community. They deepen the experience of being alive, focus attention, and lead to feelings of awe and wonder. These experiences can bring groups together" (Laws et al., 2020, p. 7).

4.2.7 Caring

The element of care within a RF is important to understand when considering how RFs are applied to EE. Within these resources there are call-to-actions included that can be categorized as the caring component of a RF. These calls-to-action reflect the "moral responsibility" subcategory shown in Table 1. For instance, the Oregon Forest Literacy Plan shares that "Everyone has a responsibility to treat forests with respect, and to be a conscientious steward of forests and forest resources" (Comnes, 2022, p. 13). Another call-to-action centers humans choices describing how

> Private decisions that affect wildlife and the environment are made through personal judgments. Each person makes such decisions each day, including use of time and energy, consumer choices, and vocational and leisure time activities (Project WILD, p. 12).

The subcategory of moral responsibility within this category is present whereas practices of care is not seen in the resources. The importance of care is evident within these quotes, but only five of the resources touched on this category.

4.2.8 Learning and transformation

Given that these resources focus on education, learning is inherently present. However, the ways in which this was discussed in the resources is actually somewhat limited. The "learning" subcategory shown in Table 1 is present in the resources via learning about nature and opportunities for learning, however the "transformation" of individuals or communities is not

represented at all. The resource from AmplifyScience discusses learning in the line "These extensions provide students with opportunities to engage in investigation, analysis, modeling, and argumentation" (The Lawrence Hall of Science, 2021, p. 24). The Blue Mountain Conservancy also discusses learning explaining "The best part of this activity is that they not only teach each person, they get to learn from each [other] as well" (Blue Mountain Conservancy pg. 12) This category was often paired with another category of the RF category influence on health. For example, in the ORFI document they explain that "Forests provide places for people to socialize, learn and recreate, and enhance both physical and mental well-being" (ORFI, p. 9). Laws et al. (2020) also say that "Contact with the natural world improves health and reduces stress. Nature is also a rich and meaningful place to learn" (Laws et al., 2020, p. 4).

4.2.9 Kinship

Kinship was the only category of a RF that was not present in any of the resources sampled here.

4.2.10 Interdependence

Stewardship and reciprocity are represented by the category of interdependence and while occurrences of stewardship are seen minimally throughout the seven resources used, reciprocity does not occur at all. The Project WILD Conceptual Framework references stewardship multiple times, with the most salient occurrence speaking to the role of management for wildlife. It explains, "Wildlife species are important components of a larger ecosystem and should be managed within the context of that ecosystem" (p. 11). The article "Exquisite Creatures: Human-Creature Connection" also has occurrences of stewardship. These come up in their description of habitat biologists explaining part of their role is to "[help] identify ways for people to build homes while preserving critical ecosystems" (OMSI). Although these

occurrences do not represent the full extent of stewardship that is possible (as discussed in Section 2.2.1 and Section 2.3.4), they do show how it is currently being discussed in EE resources.

4.3 Discussion

Among the nine categories of a RF that were used in this examination a high variability emerged. There is a wealth of information on the importance of RFs shown through scholarship on relational values, feminist care ethics, and Indigenous ethics that is relevant to the field of EE. However, the extent of a RF that is represented in EE resources currently is not representative of all of the components of a RF. The categories that are rooted in more science focused backgrounds (processes/dynamics, networks, learning and transformation, influence on health) occurred much more consistently overall than those that had foundations in humanities-based disciplines (self-concept, caring, community, kinship, interdependence). Moreover, those categories that are informed by Indigenous knowledge including Indigenous care ethics, which have often been historically suppressed as discussed in Section 2.2.1 are included even less.

Most of the occurrences of a RF that were seen in the seven EE resources sampled here are within the categories of "processes/dynamics" and "networks", both of which are based in knowledge from the fields of biology and ecology. These are both very important fields that support the backing for the environmental movement and show the impacts of the climate crisis. They are also fields which have been prioritized by western science, thus "processes/dynamics" and "networks" being the most prominent RF categories seen in these resources makes sense. However, the other seven RF categories are less prominently present, with some of the resources not even having a single occurrence of the other categories in them.

4.3.1 RF: Mindset versus educational content approaches

Throughout almost all of the categories there are two consistent approaches seen within the resources: an approach that considers a RF in terms of mindset or a general framing of EE and an approach that considers a RF in terms of educational content. Both approaches can be useful, but their applicability is quite different. The references that relate to mindset and the framing of EE help educators understand how they could situate themselves with respect to the curriculum and lesson plans they are teaching. This helps remind educators about the importance of the connection between the more-than-human world and the human world, and it encourages them to have this at the forefront of their mind when they are teaching. The references that consider a RF in terms of educational content are presented to educators as material that they can actively use in their work to inform students about RFs and to engage them with the categories of a RF. There is a similar number of occurrences of both approaches seen throughout the resources.

4.3.2 Correlations

A few of the RF categories are often mentioned in tandem or are paired together in the resources. For example, “learning and transformation” is often brought up along with “influences on health”. Since most of the occurrences of influences on health are related to mental-health and well-being so it makes sense that they are paired with learning and transformation as both categories point to personal growth and opportunities for development. Another example is the category “processes/dynamics” that regularly occurs with “networks”. These categories mostly occur together when “networks” refers to ecological networks and not to the interconnection between humans and more-than-human due their similarity in content.

4.3.3 Content gap

Throughout all seven resources examined, there was a consistent gap in content related to relational values, the relational turn, and Indigenous knowledge systems (all discussed in Section 2). Although the concepts of relational values and the relational turn are all backed by plenty of research, they are still not yet strongly established in other disciplines. Moreover, while there is sufficient literature showing the connection between Indigenous knowledge systems and environmentalism (discussed in Section 2) the application of knowledge from these traditions was limited in the resources that I analyzed in this study.

Additionally, the category of "learning and transformation" is not adequately represented in the resource documents at this point. Firstly, most of the references to this category currently refer to learning *about* nature versus learning *from* nature. While both are important, learning from nature is more representative of a RF as shown in Table 1. Secondly, the element of "transformation" within the category of "learning and transformation" is not present in any of the seven resources. The component of transformation addresses how experiences with more-than-human nature can expand one's sense of self and understanding of themselves and others as a result of learning experiences (Begum et al., 2022 and Britto dos Santos and Gould, 2018). Furthering the RF categories backed by the concepts discussed here and integrating a more robust conversation about them would benefit the field of EE (see Section 5 for more).

4.4 Limitations

Overall, one of the main limitations in this study is that this research only sampled seven resource documents. I selected seven documents that met the determined criteria necessary to be included in the study. This criterion included the accessibility of resource documents since many of them were behind paywalls. Additionally, as is always the case with a honors college thesis, I

was working within time constraints to complete this research, and thus I prioritized using reputable resources for this project (discussed further in Section 1.2). My intention in doing this was to most accurately represent scholarship within the field in the limited time that I had. While my results are meaningful, the results would have been more representative of the field of EE if a larger sample size was used.

Another limitation is that there is a wide range within the types of resources that were analyzed in this study. The resources differ both with respect to type of form and authorship. Some are lesson plans (resources one and two), others are conceptual frameworks (resources three, four, and six), and others are a different format (resources five and seven). With respect to authorship some are from educational organizations (resources one, two, four, and six), others are sections of books written by scholars (resource seven), and others are from governmental organizations (resources three and four).

Moreover, the resources were heterogenous in terms of length. Two resources were only five pages, three were around 14 pages long, and two others were about 25 pages in length. This could have potentially affected the comparability of the resources. The intended audience for these resources also differed and this may have led to the highly variation of RF occurrences amongst them.

Despite these limitations, this project produced significant findings that provide more insight into the breadth of the connection that exists between the fields of philosophy and EE. As I suspected from the beginning of this project a RF is used to some extent in EE. Even though references to such a framework are not explicit it is important to note how useful this framework is to support the goals of EE as described in Section 3.

Topics that are discussed in relational values, feminist care ethics, and Indigenous care ethics are closely related to components of EE and this is made evident through this research.

Section 5: Conclusion

5.1 Research synthesized

Throughout this project I have researched how RFs manifest in environmental education resources in Oregon and what these RFs bring to the field. In order to investigate if a RF was present, I had to articulate what a RF entailed. Before this, I read literature on the relational turn in sustainability science to better understand the conditions of a RF. Using conceptual literature on relational values, feminist care ethics, and Indigenous ethics I worked through the texts pulling out authors definitions of a RF and any other notes they made about the frameworks they discussed. Then I made a list of the most salient aspects of a RF and grouped these aspects into nine categories. Next, I synthesized explanations and examples for each of the nine categories I had found and color-coded them (represented in Table 2). After this, I analyzed and synthesized the state-of-the-art materials in EE to determine current best practices in the field. My intention here was to see if a RF was being referenced in EE already and what this looked like (findings can be seen in Table 3). Then I did a search of EE resources and selected seven resources that were accessible to me and reputable in the field to use in my research to determine whether a RF was present. For this step of the process, I highlighted references to a relational framework using the color coding that is shown in Table 2. The intention of this was to determine how a RF manifests in the resources themselves.

Throughout this step, I used a recursive method to most accurately identify how the categories actually exist in the resource documents. After initially reading and analyzing the documents I discussed how the RF categories presented with my primary thesis advisor. Based on these conversations I split the original category of “interdependence” which included the subcategories of “networks”, “reciprocity”, and “stewardship” into the two current categories

"networks" and "interdependence". The intention of this methodology was to reduce bias in the creation of the categories and create a potentially reproducible procedure. After careful rereview of the resource documents, I collected and interpreted the quantitative data that is shown Section 4.

From the resource analysis it is evident that while a RF is present in EE materials, the current state of the framework does not properly represent the various components that make up RFs. Most of the references to a RF that are currently found in the resource documents fall within the categories of "processes/dynamics" and "networks". While these categories are very important, this shows how knowledge backed in the fields of biology and ecology is being prioritized more than knowledge from humanities fields (such as "community", "caring", and "learning and transformation"). In order for a RF to be fully represented in EE materials a greater array of references to categories other than "processes/dynamics" and "networks" would need to be included. While what content is appropriate to include in EE materials is situational, with the variety of types and sources of the resources that were in this sample it is clear that the references to a RF that were found in this sample are not comprehensive at this time. By including information across the nine RF categories used in this study in EE a more interdisciplinary approach to environmental literacy can be found which supports student understanding, knowledge, and agency.

Within the references to a RF that do occur, there are two consistent approaches seen amongst many of the nine RF categories: mindset versus content. Some of the references to a RF are addressing educator's mindsets and how they should personally interact with both human and more-than-human nature. Other references provide more explicit information regarding content that educators can use in their practice that contains information about RFs. Another key finding

is that a few of the RF categories are often grouped together or mentioned together in the resources. For example, the categories of "processes/dynamics" and "networks" are often grouped together, while the categories "learning and transformation" and "influences on health" are often mentioned together throughout the resources. It is also important to note the content gap that was seen throughout the resources within the RF categories (discussed in Section 4.3.3), and considering why this content gap is present informs both my recommendations and outlook regarding my research.

5.2 Recommendations

Based on these findings, I recommend that the field of EE would benefit from a more thorough integration of a RF into resources for educators. RFs support the goals and best practices of EE, and they can support the experiences of both educators and students. As discussed in Section 3.5.1, the foundational work in EE calls for the integration of practices that exemplify a RF in order for EE to have the most impactful effect. By articulating something that is already occurring and integrating more actual information about a RF into their materials educators will be able to facilitate even more meaningful conversations than they are already having with students. Although there currently is evidence of a RF in EE resources, by making the references to a RF more pronounced there will be greater support for educators who are navigating many other responsibilities as well. Two of the approaches of integrating a RF which include a mindset that embraces a RF and content that aims to teach students about a RF (examples provided in Section 4.3.1) should be intertwined more thoroughly. This will lead to a clearer understanding that will be more feasible for educators to apply to both how they inform their pedagogy and how they practice it. Additionally, the Awareness to Action Continuum (Barnes, 2013), which has more recently been developed from the recommendations given by the

Tbilisi Declaration and Bill Stapp, can be a useful conceptual tool to use for guiding the creation of curriculum and its implementation.

By expanding the scope of a RF that is used in EE and drawing on both relational values and feminist and Indigenous care ethics more, EE will have a greater range of tools to show students how relationality connects humans and more-than-human nature. To do this, EE resources could integrate more content about the community and connections people form by being with nature. EE resources could provide information about how connections people form with other humans and more-than-human communities grow during time spent in the outdoors and prompts for starting a conversation about this with students is a great way to begin doing this. Additionally, adding more explicit information and discussions about Indigenous knowledge systems and practices, specifically in regard to reciprocity and kinship, is crucial to deconstructing the impacts of colonization that are still deeply embedded in Western educational practices.

Although I call for a greater integration of a RF into EE materials based on the sample I observed, there are other EE resources that do highlight a RF within their work. One example of this is the Learning in Places program's "Relationships in Socio-Ecological Systems Framework" which focuses on the range of interdependent relationships that surround us all. This is one of many resources that Learning in Places has for environmental educators to use in their work that highlights relationality. These frameworks could be a beneficial resource to draw upon for people creating EE materials that want to stress a RF.

5.3 Outlook

Given more time, if I continued this research I would prioritize two things. Firstly, I would sample a larger collection of EE resource documents to gain a more robust understanding

of how a RF presents in the field of EE. This would further the work that I have done in this project. I would also compliment the qualitative and interpretive analysis that I have conducted with a collection of quantitative data describing additional specifications about the context in which references to a RF are occurring. Secondly, I would create a handbook that educators could use to integrate a RF more strongly into their pedagogy and curriculum. While this would cover ways to address and teach for all nine categories of a RF identified in this project, I would especially prioritize including robust information and resources about the categories that were seen to be less represented in my research.

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