Healing Earth in a Time of Crisis: Curriculum for Integral Ecology

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LOYOLA UNIVERSITY CHICAGO

HEALING EARTH IN A TIME OF CRISIS:
CURRICULUM FOR INTEGRAL ECOLOGY

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL OF EDUCATION
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF EDUCATION

PROGRAM IN CURRICULUM AND INSTRUCTION

BY

CALEB STEINDAM

CHICAGO, ILLINOIS
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I am eternally grateful to my parents, Harold and Jenny, for teaching me to love and revere Earth and to believe that my perspective is worth sharing with the world; to my siblings, Nevin and Sara for bringing out the best in me as my lifelong best friends; to all my other wonderful family members, too numerous to name here; and, especially, to my partner Stephanie for the endless love and joy she brings to my life.

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ABSTRACT

This intrinsic multiple case study examined secondary- and university-level educators’ experiences teaching with *Healing Earth*, a curriculum developed by the International Jesuit Ecology Project at Loyola University Chicago, which merges scientific, social, spiritual, and ethical analyses of pressing ecological issues. Based on the conceptual framework of integral ecology, *Healing Earth* is a response to Pope Francis’s (2015a) call for “a new way of thinking about human beings, life, society and our relationship with nature” (§215).

This study primarily consisted of in-depth interviews with educators who have used *Healing Earth* in a variety of secondary and post-secondary Catholic educational contexts. A preliminary survey, which was completed by 12 educators, generated additional data. Six themes emerged in the data analysis: *community and collaboration*, *engagement across diverse contexts*, *spiritual ecology in a Catholic context*, *perceiving Earth’s intrinsic value*, *generating hope*, and *taking action*. The findings offer insight into challenges, opportunities, and hope for a courageous, truthful, spiritually and ethically grounded approach to teaching ecology in a time of crisis.
CHAPTER I
INTRODUCTION TO THE STUDY

Earth is afflicted with an ecological crisis that may well be “the greatest challenge humanity has ever faced” (Salamon & Gage, 2020, p. xiii). How do we teach young people to live in this world while working toward a healthy, just, and sustainable future? In this dissertation study I explore a curriculum and framework addressing this question through an integral approach.

Problem Statement

This section introduces the problem that this study aims to address. I discuss the problem in two parts. In the first part I present a brief overview of the ecological crisis as context for the study, emphasizing how diverse but interrelated manifestations of this crisis impact every aspect of life on Earth. I highlight the multiplicity and intractability of the crisis to support my rationale for an integral ecology framework. In the second part I discuss the ecological crisis as a curriculum problem, advancing my case for integral ecology in education by arguing that the dominant curriculum paradigm presents a fragmented view of reality that obscures Earth’s interconnectedness.

Ecological Crisis

In this section I introduce the ecological crisis with attention to its intertwined causes and effects. This overview is not comprehensive. For thorough and up to date information on the ecological crisis including its causes, scope, impacts, future
The ecological crisis is an amalgamation of interrelated crises, most notably climate change, pollution, deforestation, and biodiversity collapse, that are disrupting the balance of life on Earth. The most widely discussed of these crises is climate change, the overall warming of Earth’s surface temperatures that is causing extreme and unpredictable weather events, rising sea levels, droughts and desertification, wildfires, and myriad other ecological disturbances giving rise to the first mass extinction in human existence. Because climate change is inextricable from all other aspects of the ecological crisis, the term climate change (or alternate terms such as climate emergency, climate crisis, global warming, or global heating) is often used interchangeably with ecological crisis in contemporary discourse. I believe the term ecological crisis more aptly describes the complex web of interwoven collapses occurring throughout Earth’s ecosystems.

Causes and effects of the ecological crisis intertwine and exacerbate each other. The most substantial cause is probably the burning of fossil fuels (petroleum, coal, and natural gas), which emits greenhouse gases such as carbon dioxide (CO2) and methane into Earth’s atmosphere. Other major greenhouse gas emitters include livestock, farming practices, wastewater treatment, and organic waste decomposition. The excess of greenhouse gases in the atmosphere is causing Earth’s surface temperatures to increase at an accelerating rate. Climate change is widely considered the most dangerous and
intractable threat to human health and survival. Meanwhile, deforestation, the destruction of tropical forests and other ecosystems, exacerbates virtually all aspects of the crisis. The leading driver of deforestation is agriculture: people clear land to grow crops or graze livestock, or to harvest trees for lumber, paper products, or fuel. Housing, commercial development, and transportation are other common reasons for forest removal. Deforestation is the leading cause of the extinction crisis, and it magnifies both climate change and air pollution by eliminating trees and other plants that absorb pollutants and CO2 and by emissions of pollution and CO2 from forest burning. Climate change and deforestation form a positive feedback loop: deforestation intensifies climate change by increasing CO2 levels, and in turn the changing climate causes some trees and other vegetation to die out (Albrich et al., 2020). The ecological crisis includes many such positive feedback loops, in which an effect of a phenomenon (i.e., climate change) further intensifies it. Another example of a positive feedback loop is the melting of Arctic ice, an effect of rising temperatures that provokes further warming as liquid water absorbs more of the sun’s heat than ice (Hall, 2004) and as the melting ice releases previously trapped methane deposits (Shakhova et al., 2010).

Pollution is also inseparable from the other major facets of the ecological crisis. The word pollution describes contamination of any part of the natural world. Although we often think of pollution of the air separately from pollution of the soil, of the water, and so on, there is no true separation between air, soil, and water in Earth’s ecosystems, so it makes sense to think of all forms of pollution as part of the same larger phenomenon. The leading cause of climate change, fossil fuel combustion, is also a
leading cause of air pollution. Additional significant sources of air pollution include other types of combustion such as the burning of biomass fuels, as well as toxic fumes from various sources including household and industrial chemical products, fertilizers, and weapons of war. These chemical sources are major pollutants of soil and water as well, mostly through waste disposal, runoff, and spills from manufacturing, agriculture, utility plants, and sewage systems. Meanwhile, plastic waste, in the form of both plastic objects and microplastic particles, has become arguably the most pernicious pollutant of all, bringing devastation to countless species and ecosystems throughout all corners of Earth, most of all the ocean. Pollution in all its forms, in combination with deforestation and climate change, is causing a rapid decline in biodiversity that is developing into the first mass extinction in human existence.

It is difficult to comprehend the enormity of the ecological crisis or to put this crisis in context amid the myriad crises of our time, from social, racial, and economic injustice to war, famine, poverty, and displacement, to other threats to human health and life such as the COVID-19 pandemic. As I discuss later in this chapter and further in Chapter 2, the integral ecology framework provides a context for understanding these various crises as interrelated. This framework also provides perspective to allay the emotional, psychological, and spiritual burden that awareness of the ecological crisis imposes. There has been a tendency in writing about the ecological crisis to strike a tone of “doom and gloom” (Saylan & Blumfield, 2011, p. 10), with a corresponding debate among scientists, activists, and journalists about whether presenting a bleak outlook on our ecological situation “is counterproductive, fostering resistance, apathy, or despair
instead of hope and motivation to change” (Hall, 2014, p. 23). While I have no interest in propagating feelings of doom or gloom, it is important to understand the scale of this crisis, the threats it poses, and the urgency of acting to avert catastrophe. The climate situation is dire. Global temperatures have increased about one degree Celsius since 1850, already leading to greater frequency and severity of storms, droughts, floods, and famine (IPCC, 2020). The general consensus has been that the increase in temperature must not exceed 1.5 degrees if we are to prevent “irreversible and catastrophic impacts” (United Nations [UN] Climate Change Secretariat, 2019, p. 3), yet this goal now appears out of reach. New research indicates that we have already emitted enough greenhouse gases to push warming above 2 degrees Celsius (Zhou et al., 2021). Even by relatively optimistic estimates, the 1.5 degree limit would require us to reduce carbon dioxide emissions by 45% over the next two decades and achieve net zero emissions by 2050—a daunting task to say the least, given that global emissions have increased rather than decreased even amid our growing awareness of climate change (IPCC, 2018). Even the drastic lifestyle changes in 2020 in response to the COVID-19 pandemic did not approach the necessary reduction in emissions to reach the UN’s climate goals (Le Quéré et al., 2020). If current trends continue, Earth’s average temperature will increase by at least 3 degrees Celsius this century (IPCC, 2020), the implications of which are terrifying. (See, for example, Wallace-Wells, 2020, for an unflinching account of the projected impacts of several degrees of warming).

There is a tendency to adopt a relatively short-term perspective of both past and future when considering the ecological crisis. As Clark et al. (2016) point out, discussions
of future impacts of climate change rarely look beyond the year 2100, yet “the projected impacts of anthropogenic climate change will grow and persist” for “the next ten millennia” (p. 360). Therefore, we should not succumb to the illusion that the ecological crisis is a problem we can merely solve and move on from. Even apart from climate change, we have developed and defaced Earth in indelible ways that we have no way to reverse. The mass of human-made materials and structures now exceeds the mass of all organisms alive on Earth (Elhacham et al., 2020), and plastic pollution is causing ecological damage in even Earth’s remotest, seemingly untouched ecosystems (Brahney et al., 2020). Humans have produced billions of metric tons of plastic, the equivalent of a small water bottle for every square meter of Earth’s surface (Gibb, 2019), much of which will last hundreds or thousands of years before breaking down into even more harmful microparticles. More than 70% of Earth’s ice-free land surface is now being affected by human use (IPCC, 2019), and only 40% of our remaining forest area maintains ecosystem integrity (Grantham et al., 2020). Biodiversity is the foundation of ecological health, and its collapse is giving rise to the first mass extinction in human history. Each of the five mass extinctions that occurred prior to human existence killed off 75% to 96% of all species, “so complete a wiping of the fossil record that it functioned as an evolutionary reset” (Wallace-Wells, 2020, p. 8). Most of those mass extinctions, like the present one, correlated with greenhouse-induced climate change (Biello, 2007).

For historical context, we should understand that the ecologically destructive human behavior provoking this crisis is a relatively new phenomenon. Humans have only had the technological capacity for large-scale ecological disruption since the industrial
revolution of the 18th century, which represents about 0.1% of the time humans have spent on Earth. Most of the damage has been far more recent. In just the past three decades, we have emitted as much carbon from fossil fuel combustion (Wallace-Wells, 2020) and produced as much plastic (Ritchie & Roser, 2018) as in all the rest of human history combined.

The human species is wholly responsible for the ecological crisis, but the blame is not equally shared by all people. There is a direct correlation between wealth and ecological destruction. Throughout the world, wealthier people consume resources, produce waste, and contribute to pollution and greenhouse gas emissions at far higher rates than poorer people (UN Environment Programme, 2020; Wiedmann et al., 2020). Correspondingly, the wealthiest nations emit by far the most greenhouse gases. The United States (US) has generated more CO2 emissions than any other country, in total and per capita. China, the most populous country on Earth, is currently generating the most total CO2 emissions but still generates fewer emissions per capita than the US, Canada, Australia, and most European and Arab countries. As a region, Europe has produced the most CO2 emissions to date, slightly ahead of North America and Asia (Global Carbon Project, 2020). Unsurprisingly, Sub-Saharan Africa, the region with the least wealth per capita in the world (International Monetary Fund, 2020), emits the least CO2 per capita (Global Carbon Project, 2020). The grotesque irony of the ecological crisis is that human populations who are the least wealthy and least responsible for bringing about the crisis, are being harmed most by it. As Sorondo and Ramanathan (2016) observe, “Climate pollutants come primarily from the wealthy 1 billion, but the
The worst consequences of associated climate change will be experienced by the bottom 3 billion, who had little to do with this pollution” (p. 747). This is true in broad geographical terms, as the Global South is disproportionately suffering from desertification and drought (Doyle & Chaturvedi, 2011), as well as within populations, as individuals living in poverty are far more likely to suffer the health effects of pollution (Perera, 2018).

The economic bearing the most obvious blame for the ecological crisis are large fossil fuel companies, which source the majority of humans’ greenhouse gas emissions. According to the exhaustive Carbon Majors Report (Griffin, 2017), just 100 companies have produced more than 70% of the emissions since 1988. These companies’ processes of extraction have devastated ecosystems throughout the world, and their spills and leaks have poisoned countless human and nonhuman beings (Jafarinejad, 2016). Many of these companies have enacted sophisticated strategies of sowing doubt, hiding evidence, and propagating lies to prevent the public from understanding the threat of climate change (Brulle, 2020) while lobbying against ecologically sound policies and actively suppressing the emergence of renewable energy sources that would mitigate pollution and climate change (Parafiniuk & Smith, 2019), all for the sake of increased profits.

Of course, the fossil fuel industry is fueled by the energy demands of other industries, especially those industries involved in agriculture, manufacturing, construction, transportation, and utilities services. Figure 1 shows the proportion of greenhouse gases emitted by the various economic sectors.
Clearly, then, much of blame for the ecological crisis can be placed at the feet of the wealthy; of industry leaders, especially of fossil fuel companies and other significant polluters and emitters; and of the political actors who exacerbate or fail to mitigate the
crisis, whether due to ignorance, incompetence, cowardice, or corruption. Without absolving any of the responsible parties, a more constructive approach might be to frame the problem not in terms of individuals or groups of people, but of systems (Duffy, 2010). To better care for Earth, we must address systemic issues of economic inequality and the various social, political, and economic factors that produce and exacerbate conditions of obscene wealth and desperate poverty; corruption, both legal and illegal, in our political systems that allow polluters’ profits to be prioritized over ecological considerations; societal, psychological, and spiritual factors entrenching us in lifestyles of excessive consumption and waste; prevailing economic models that rapaciously prioritize profit while irrationally promoting endless economic growth (Hickel, 2020); and ideologies and institutions that perpetuate war, which is a significant driver of ecological harm (Stedman-Edwards, 2000) that breeds further instability, poverty, corruption, and misery, all of which hinder our ability to envision a better future together.

As I have discussed above, the people suffering the worst impacts of the ecological crisis are those least responsible for it: indigenous peoples, economically disadvantaged nations, and communities lacking power and wealth in their respective societies. Yet as the ecological crisis intensifies it will increasingly affect people across geographical, social, and economic groups, and every aspect of human life will be impacted. Already, the ecological crisis is profoundly impacting fundamental aspects of human life and civilization, from food production and supply (Glotter & Elliott, 2016; Schaubberger et al., 2017; Tigchelaar et al., 2018) and water availability (Garrote, 2017) to housing (Adetokunbo, 2015) and urban planning and infrastructure (Salimi & Al-
The crisis has destabilized our economic systems (Carleton & Hsiang, 2016), provoked violence (Levy, Sidel, & Patz, 2017), and heightened anxiety and depression (Pihkala, 2019; Ray, 2020; Salamon & Gage, 2020; Verlie, 2019). Air pollution harms infants even before birth (Bekkar et al., 2020), and 90% of people now breathe air with unsafe levels of pollution. Seven million people die from air pollution every year (World Health Organization, 2020), which means that even as I write this at the height of the COVID-19 pandemic, air pollution poses a more fatal risk than the coronavirus. The ecological crisis might be partially responsible for the genesis of the coronavirus pandemic itself (Settele et al., 2020) and has significantly worsened the health impacts of COVID-19 (Wu et al., 2020). In short, no aspect of our lives is untouched by the ecological crisis. This should not be surprising, because our lives exist wholly within our ecological context. All of Earth is interconnected, including ourselves. The myth of our separateness from Earth is the root of the ecological crisis. Our education systems have contributed to this myth of separateness. Now we must correct this myth and prepare our young people for the work of ecological healing.

**Curriculum Problem**

The ecological crisis is a problem for curriculum both because it is a fundamental challenge that curriculum must address, and because it reveals a great educational failure over many decades leading to now. As Saylan and Blumstein (2011) observe, “Environmental education has failed to bring about the changes in attitude and behavior necessary to stave off the detrimental effects of climate change, biodiversity loss, and environmental degradation that our planet is experiencing at an alarming rate” (p. 1).
Pope Francis (2015a) suggests that the ecological crisis a symptom of “the ethical, cultural and spiritual crisis of modernity” (§119) characterized by “loss of that sense of responsibility for our fellow men and women upon which all civil society is founded” (§25). In a related way, Salamon and Gage (2020) describe the diseased ideology that gave rise to the ecological crisis and “still prevails today,” which fosters beliefs such as:

- “You are an isolated individual, defined by what you achieve and what you buy.”
- “There is no community, and there is no web of life.”
- “You have no moral responsibilities. In fact, you are a deprived victim who deserves much more than you get.”
- “You are living at the pinnacle of human achievement, defined by constant economic growth, and it’s naïve to think there could be anything different.” (pp. 4-5)

Our schools have failed to provide a compelling alternative to these beliefs, and the predominant curriculum paradigm reinforces prevailing ideologies of isolation and consumption by presenting a worldview characterized by separateness rather than interconnectedness.

The encroachment of the ecological crisis into all aspects of life on Earth poses a fundamental challenge to conventional curriculum models. We organize curriculum by dividing content into categories – units, subjects, disciplines – taught in isolation from other categories. Makar (2018) and Miller (1988) refer to this curriculum paradigm as atomization; in this dissertation, I call it curriculum fragmentation. The paradigm of
fragmentation is so prevalent that we scarcely notice let alone question it, but it shapes our understandings and perceptions by depicting a world that is fundamentally divided. For example, by treating human history as separate from natural history, rather than as interrelated components of a shared history, students learn to think of humankind as apart from, rather than part of, the natural world. Yet our world is interconnected; categorical divisions exist only in our naming of them. The myth of separateness teaches us to ignore the repercussions of our actions as individuals, and it obscures the ecological impacts of our systemic policies and practices. As Orr (2004) explains, by failing to instill “any broad, integrated sense of the unity of things,” our education systems “routinely produce economists who lack the most rudimentary understanding of ecology or thermodynamics,” and consequently “our national accounting systems do not subtract the costs of biotic impoverishment, soil erosion, poisons in our air and water, and resource depletion from gross national product” (p. 11).

Our education systems too often reproduce, rather than challenge, our ecologically untenable economic system and serve as willing partners to the industries fomenting our ecological decline. The influential strain of thought known as social efficiency regards the central purpose of curriculum as “maintaining and enhancing economic and social productivity by equipping future citizens with the requisite knowledge, skills, and capital” to serve the needs of the economy (Deng, 2012, p. 43). In its extreme forms, the ideology of social efficiency reduces the roles of students and teachers to “raw materials” and “labor” (Schiro, 2012, p. 65), a view still evident today in discussions about generating “human capital” through science, technology, engineering,
and math (STEM) education (e.g., National Science Foundation, 2010; Winters, 2014; Wright & Ellis, 2019). This logic is apparent even at the highest levels of education policy, as in the US Department of Education’s (2020) recent proclamation of the need to prepare students to “meet the demands of the dynamic and evolving workforce” (para. 1).

In a change from earlier iterations of social efficiency ideology, contemporary discourse more commonly emphasizes how students will benefit from future jobs rather than how industry will benefit from their labor. Still, the implication is that schools should prepare students to work within our current economic system in support of the very industries that brought us to a state of ecological crisis (Donovan et al., 2014). As an illustration of who curriculum ultimately serves when designed around workforce needs, a previous US presidential administration proudly touted the investments of corporations including petroleum companies and weapons manufacturers in federal efforts to advance STEM education (The White House, Office of the Press Secretary, 2010).

Even as STEM education is lauded for the economic benefits of preparing students for future careers, it is concurrently hailed as a solution to the ecological crisis (see, for example, Bybee, 2010; Winters, 2014; Marrero, 2014). Understandably, people hope that researchers and engineers of the future will deliver a last-minute innovation or discovery that will deliver us from the consequences of ecological collapse. It seems easier to imagine experts solving the problem than to envision transforming our own ways of living. However, we must avoid falling into the trap of believing that we can engineer our way out of the ecological crisis. As Pope Francis (2015a) observes, “Technoscience, when well directed, can produce important means of improving the
quality of human life” (§103), and its tools can facilitate our progress toward ecological healing. Conversely, if we do not reform our beliefs, behaviors, and institutions, technoscience will continue to expedite our ecological collapse. As Wendell Berry (2000) reminds us, “many of the calamities from which science is expected to save us were in the first place caused by science” (p. 21). The ecological effects of technological advancement so far have been catastrophic, “because our immense technological development has not been accompanied by a development in human responsibility, values and conscience” (Francis, 2015a, §105). Therefore, we must reject the framing of technological innovation as “racing” against climate change (e.g., Behles, 2009; Page, 2020; Rau, 2019). Our technological capacity will continue to race forward, while the role it will play in our ecological future depends on the ways in which we direct its development and application. Curriculum’s failure in the face of ecological crisis has not been an insufficient emphasis on technological advancement, but a failure to “[accompany] our immense technological development” with “development in human responsibility, values and conscience” (Francis, 2015a, §105).

Environmental education has appeared as a stand-alone subject in mainstream curriculum since the 1970s (Gruenewald, 2004), when there was a growing awareness of environmental issues marked by the observance of the first Earth Day in 1970. Since then, environmental education has taken many forms across time and throughout the world (Palmer & Neal, 2003). However, given the escalation of ecological crises in the past half-century, it is clear in hindsight that schools should have dedicated more and different attention to the topic. To the extent that environmental education is included in
curriculum, its efficacy is diminished by the paradigm of fragmentation I describe above, where its separateness from other studies obscures the interconnectedness at the heart of our ecological existence. Even though some recent curriculum initiatives (e.g., Coyle, 2020; Eames & Mardon, 2020; McCann, 2011; Rosenberg, 2020) seek to incorporate more authentic, critical, compassionate, relevant, and integral approaches, environmental curriculum has broadly failed to meaningfully address our ecological reality.

Much of the discourse around environmental curriculum (e.g., Colston & Vadjunec, 2015; Foss & Ko, 2019; Harmon, 2017; Shapiro, 2020) focuses on the importance of convincing students of the reality of climate change (Plutzer & Hannah, 2018). This is not only an insufficient aim for curriculum, but it implicitly legitimizes cynical attempts to refute climate science by reinforcing the assumption that there are inevitably two sides to ecological issues (Saylan & Blumstein, 2011). There is a curiously widespread assumption that we can overcome climate change merely by convincing people its existence, even though a majority of people throughout the world (including the US) already believe that climate change is a “very or extremely serious” concern, while only 12% of people in the US, and far fewer in most other countries, still believe that “climate change is not serious at all” (Newman et al., 2020, p. 52). According to Krasny (2020), most environmental education efforts are based on the knowledge-attitude-action theory of change: the belief that “increased knowledge leads to favorable attitudes . . . which in turn lead to action promoting better environmental quality” (Hungerford & Volk, 1990, 258, quoted in Krasny, 2020, location 204). This theory does not hold true, as evidenced by research (Otto & Pensini, 2017) and by the fact that
humans’ ecologically destructive behaviors have increased even as we have accumulated indisputable and widely disseminated evidence of the catastrophic consequences. Krasny (2020) suggests more intentional and effective ways for environmental educators to promote pro-ecological behaviors beyond the knowledge-attitude-action paradigm. These suggestions include prioritizing action-oriented, rather than generalized, knowledge; emphasizing collective action; cultivating a sense of place and connection to nature; developing efficacy; and fostering identities based on caring for the environment.

In conceptualizing curriculum to heal our relationships with Earth, we must also consider the generational context. Younger generations today have a great deal of ecological awareness and sense of urgency already, coupled with a justified anger at those who hold great power yet fail or refuse to use it for the sake of our planet’s future, resulting in some of the largest mass protests in history (Almeida, 2019). The anger and passion of today’s young people is famously exemplified by Greta Thunberg, as in her address to the UN Climate Action Summit:

People are suffering. . . . Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you? . . . You are failing us. But the young people are starting to understand your betrayal. The eyes of all future generations are upon you. And if you choose to fail us, I say: We will never forgive you. (UN Department of Economic and Social Affairs, 2019, video)

We, the older generations who have enabled and perpetuated the ecological crisis that we pass on to our young people, have neither the expertise nor moral standing to teach young
people what we failed to learn ourselves. In guiding our students to care for Earth, we must listen and learn from them, accompany them in their fear and grief over the crisis they will inherit, and be allies to their actions for positive change.

Much of my writing of this dissertation has been during the COVID-19 pandemic, which caused sudden and unprecedented changes to education practice, as the infection risk prompted many school systems throughout the world to suspend in-person learning. Among myriad other challenges to education, distance learning presents obstacles to educating for ecological awareness. As I have argued elsewhere (Steindam, 2016), it is through direct experience of nature that we best gain understanding, care, and a sense of wonder at the majesty and intricacy of Earth’s forms and systems. Despite the heroic efforts of many teachers to transcend the limitations of distance learning, an educational experience mediated through a computer screen cannot equal real-world experience. This is a dangerous time for education, as many powerful interests stand to profit immensely by proliferating an online learning model in which software replaces living interaction.

Yet there is hope that this unprecedented scenario may also provide an opportunity to rethink our assumptions about curriculum and incorporate a more critical, compassionate, and holistic worldview. In the following section I present an overview of integral ecology, which I believe represents our best path forward for ecological education.

**Conceptual Framework**

This dissertation study is based on the conceptual framework of integral ecology, which offers an authentic, expedient, and hopeful outlook in this time of ecological crisis. Pope Francis attributes his conception of integral ecology to the teachings of Saint
Francis of Assisi, who inspired the title of *Laudato Si*. In his words and actions, Saint Francis of Assisi “radiantly embodied” a “sublime fraternity with all creation” (Francis, 2015a, §221).

As defined by Pope Francis in *Laudato Si*’ (2015a), integral ecology is founded on “the conviction that everything in the world is connected” (§16). Encompassing “the sciences and economics, but also those areas with a specifically human concentration such as anthropology, sociology, politics, and art … theology and philosophy” (Kelly, 2018, p. ix), this framework rejects the demarcations that too often separate the sciences from other realms of knowledge and experience. As an alternative to paradigms of fragmentation, the integral approach offers a more authentic way of understanding the intermingled causes and manifestations of the ecological crisis. The interconnectedness of the ecological crisis reflects the interdependence of our global ecosystem. Integral ecology does not focus only on the crisis but examines all aspects of our ecological system while rejoicing in Earth’s sacred beauty. Thomas Berry (1978), the ecotheologian most widely associated with integral ecology prior to *Laudato Si’,* declared that the future of humankind depends upon our “awakening once again to the reality and wonder of the earth” (p. 53).

Integral ecology is situated within the Earth-centered ecology movement, as opposed to the human-centered environmental movement, “based on the acknowledgment that we belong to the Earth, whereas the Earth does not belong to us” (King, 2010, p. 249). A core tenet of integral ecology is that all creation has *intrinsic value*. Environmentalist perspectives, in contrast, tend to emphasize instrumental value or
the value of resources that can be extracted from Earth for human gain. In developing his case for integral ecology, Francis rejects the “technocratic paradigm” that “[seeks] only a technical remedy to each environmental problem” while ignoring the “true and deepest problems of the global system” (§111).

According to Miller (2017), Francis’s conception of integral ecology can occur on three levels: understanding, perception, and action. The first level is “understanding that interconnection is the essence of reality” (p. 11). This intellectual understanding guides the formation of ethical codes that provide reasons for action. The second level, of perception, occurs not just in thoughts or beliefs but in attentiveness to the world, which allows for “a way of seeing that can perceive interconnections among humans and the rest of creation” (p. 11). This “gaze of serene attentiveness” is “an attitude of the heart” (p. 14) that allows us to perceive Earth as “a caress of God” (Francis, 2015a, §84). In this way we learn to honor and love Earth not merely intellectually but intimately and are intrinsically motivated to protect and heal Earth. This brings us to Miller’s third level of understanding integral ecology: action. Ethical frameworks are less important at this level, because love is the most powerful motivator. We act out of a “responsibility [that originates] in a loving response to our brothers and sisters with whom we share creation, rather than on self-sacrifice for abstract ideals” (Miller, 2017, p. 12). Thus, even from a pragmatic perspective, love is key. As Wendell Berry (2000) observes – recalling once again the critical distinction between intrinsic and utilitarian values – “people exploit what they have merely concluded to be of value, but they defend what they love” (p. 86).
There is a radical social vision at the heart of the integral ecology framework. *Laudato Si* draws on Pope Francis’s previous description of “a human ecology” that is “closely connected with environmental ecology” and corrupted by “the idols of profit and consumption” (2013a, para. 5). The conviction that all life on Earth has intrinsic value as part of God’s creation, is inseparable from the belief in the sacred value of all human life created in God’s image. Francis’ doctrine of social and ecological justice is further developed in his most recent encyclical *Fratelli Tutti* (2020), which reiterates the moral connection established in *Laudato Si*’ between exploitation of Earth and indifference to human suffering. *Fratelli Tutti* cautions that “Poverty, decadence and suffering in one part of the earth are a silent breeding ground for problems that will end up affecting the entire planet” (Francis, 2020, §137) and calls on us to “dream . . . as a single human family, as fellow travelers sharing the same flesh, as children of the same earth which is our common home” (§8). By providing a coherent framework for understanding the connections between ecological, social, and economic issues, integral ecology rejects the assumption that we can only prioritize certain issues at the expense of others.

As the conceptual framework for this dissertation study, integral ecology serves a different function than a theoretical framework. Given the exploratory nature of this research, I have chosen not to adopt a theory but to use integral ecology as a “lens or perspective to guide the study” (Cheek, 2008, p. 763). Similarly, as a curriculum framework, integral ecology imparts aims, principles, and understandings to guide the educational process, but it does not prescribe specific pedagogical methods or curricular content. Due to the constraints of our educational systems and of our own perspectives
and intellects, there will always be impediments to attaining holistic ecological awareness. Still, there is immense value in striving imperfectly toward deeper understanding of our interconnected world. This study focuses on *Healing Earth*, a curriculum developed by the International Jesuit Ecology Project (IJEP) and expressly inspired by the vision of *Laudato Si’*, as a manifestation of integral ecology in education.

As part of the *Healing Earth* project, IJEP (2020) presents a Developmental Framework for an Integral Ecology (see Figure 2) illustrating a vision for global change through a progression of five levels of action. Each point on the progression connects two axes: one axis represents the human groups or systems in which the development occurs, and the other axis represents the way people engage with the development. As with Miller’s (2017) analysis above, IJEP’s developmental framework envisions a progression in people’s engagement with integral ecology from the realm of knowledge and understanding toward concrete action and change. IJEP’s developmental framework demonstrates a concurrent progression from engagement by specific groups, i.e., scientists and advocacy organizations; to a cultural and spiritual transformation in which all people participate; and finally to fundamental shifts in our political and economic systems.
IJEP’s developmental framework reflects Pope Francis’s egalitarian vision for social and ecological healing based on broad participation of people of all backgrounds throughout the globe. The stated aim for Healing Earth is to help people throughout the world develop into integral ecologists, defined as “people from every walk of life and region of the world who dare to imagine a healed Earth and are willing to put their hands,
hearts, and minds to the task” (IJEP, 2020j, para. 7). Consistent with this aim, all of Healing Earth’s content is freely accessible online, in multiple languages, at no cost and with no restrictions. The Healing Earth curriculum is never finished but exists as a living text, continually updated to remain current and improve based on the insights and experiences of those who teach and learn with it. The curriculum aims to be accessible to any educators teaching in secondary, post-secondary, or community-based contexts, regardless of their experience levels or expertise. IJEP encourages users to select and adapt Healing Earth’s materials in any way needed to meet their needs and educational contexts (2020h).

IJEP applies an ethical framework, which I illustrate in Figure 3, throughout all Healing Earth materials. The ethical framework is based on three ethical foundations: intrinsic value, instrumental value, and environmental sustainability. IJEP uses the example of honeybees to illustrate the three foundations. A honeybee has intrinsic value “as a creature of nature whether it serves the human needs or not” (IJEP, 2020e, para. 24). A honeybee has instrumental value because “nearly one third of all plants and plant products necessary for human survival depend on honeybee pollination” (IJEP, 2020e, para. 25). Environmental sustainability requires us to respect both honeybees’ intrinsic and instrumental value by ensuring that honeybees remain healthy and abundant for future generations. Healing Earth’s ethical framework further provides three sets of norms to support the ethical foundations: six moral principles, seven moral goals, and six moral virtues. I discuss Healing Earth’s ethical framework in greater depth in Chapter 2.
The content of *Healing Earth* is organized into six interdisciplinary units, each addressing a major aspect of our global ecological crisis: *Declining biodiversity, Natural resource depletion, Shift to renewable energy, Water quality and availability, Food quality and availability*, and *Global climate change*. One way *Healing Earth* applies an integral lens to these topics is through case studies that explore how ecological, social, political, economic, ethical, and spiritual factors intersect. As an example, the unit on *Global Climate Change* (IJEP, 2020d) contains a case study set in Mongolia, where the livelihood of nomadic herders is being upended as the temperature has increased by more than two degrees Celsius, accompanied by unpredictable changes in weather patterns. As the case study shows, these changes are ecological, economic, cultural, spiritual, and political all at the same time. The economies of the local markets and the herders’ livelihoods have been severely disrupted by the changing climate. The changes have also
“disrupted the herders’ traditional knowledge” (IJEP, 2020d, para. 7) and “sent a shock through the herders’ personal and cultural identity” (IJEP, 2020d, para. 9). Climate change “has likewise shaken the peoples’ spiritual traditions, linked as these are to the rhythms of nature, the tasks of animal husbandry, and the role each family member plays in sustaining a nomadic lifestyle” (IJEP, 2020d, para. 9). The situation is resulting in growing political unrest, with herders of Inner Mongolia protesting to demand assistance from the ruling Chinese government. At the end of the case study, several questions are provided to help the learner frame their thinking about the complex ecological, spiritual, political, and ethical implications of the case.

There are endless possibilities for integral ecology education. Healing Earth is the best existing example of a written curriculum for integral ecology. In this study I explore educators’ experiences teaching with Healing Earth.

**Research Questions**

- How do secondary- and university-level educators describe their experiences teaching with Healing Earth?
  - In what ways do these educators use Healing Earth curriculum resources?
  - How have these educators incorporated the principles of integral ecology when teaching with Healing Earth, including the understanding that all life and systems on Earth are interconnected; belief in the intrinsic value of nature; and integrating spirituality, ethics, humanities, politics, and social sciences, into ecological understandings?
○ What opportunities and barriers have these educators encountered when teaching with *Healing Earth*?

○ In these educators’ accounts, how do students respond to the Healing Earth curriculum? What questions do students raise? What topics or actions are students most interested in pursuing?

● What lessons have these educators drawn from teaching with *Healing Earth*?

What ideas and vision do they share for future directions in education?

**Methodology**

This dissertation used a methodology of qualitative multiple intrinsic case study to explore various educators’ experiences teaching with *Healing Earth*, as well as their other experiences related to teaching with an integral ecology framework. I first conducted a survey (see Appendix A) to gather initial data about participants’ teaching contexts and the ways they have used *Healing Earth*. For my principal source of qualitative data, I then conducted in-depth interviews with five participants who have used *Healing Earth* in their teaching.

**Participants**

I identified 14 potential participants for this research, all of whom I invited to participate in the initial survey. 12 participants responded to the survey, and five of these participants later participated in in-depth interviews.

**Survey Participants**

I obtained contact information for all participants through personal referrals from colleagues involved in the *Healing Earth* project and through information provided on
the *Healing Earth* website. All participants met the criteria of being educators who have used *Healing Earth* as a resource in their teaching. Out of the 14 educators to whom I sent the survey, I received 12 responses. Eight (67%) of the respondents taught at the secondary level and four (33%) taught at the university level. All respondents taught in Catholic institutions, and nine of the 12 taught in Jesuit institutions. Six participants (50%) were located in the US, and six (50%) were located outside of the US.

**Interview Participants**

The final question on the survey asked participants whether they were interested in participating in in-depth interviews. Of the twelve survey respondents, ten participants expressed interest in participating in the interviews. Out of these ten candidates, I identified the seven participants who had used *Healing Earth* most extensively according to their survey responses, and I invited those seven people to participate in interviews. Five participants responded and agreed to participate in the interviews. Of these five participants, two taught at the secondary level and three taught at the university level. Four of these participants taught in Jesuit institutions, and the other participant taught in a non-Jesuit Catholic institution. Three (60%) participants were located in the US, and two (40%) were located outside of the US.

**Initial Survey**

The first phase of my research consisted of a survey that provided initial data while serving as a tool to recruit and select interview participants. After obtaining IRB approval to conduct the survey, I emailed the 14 educators I had identified to have taught with *Healing Earth*, inviting them to complete an online survey. The survey
questionnaire (see Appendix A) contained questions in a variety of formats asking participants about their teaching contexts, their use of *Healing Earth*, and other attempts to teach with the principles of integral ecology. Twelve of the 14 invited participants completed the survey. I report the survey results in detail in Chapter 4.

**Interviews**

The primary source of data for this study was a series of in-depth interviews with educators who have taught using *Healing Earth*. I interviewed five participants to learn about their backgrounds and teaching contexts, their experiences teaching with *Healing Earth*, and their interpretations of these experiences.

**In-Depth Interviews**

I conducted two in-depth interviews each with five participants via Zoom. The first interview with each participant lasted between 60 and 75 minutes, and the second interviews lasted 30 to 45 minutes. In these interviews, I asked probing questions seeking descriptive and explanatory details about participants’ observations, decisions, and interpretations. Cook (2008) describes in-depth interviews (also called semi-structured interviews) as “[oscillating] among the researcher's introduction of the topic under investigation, the participant's account of his or her experiences, and the researcher's probing of these experiences for further information useful to the analysis,” which “provides the researcher with in-depth information on the topic of interest without predetermining the results” (p. 423). The first interviews began by exploring the participant’s backgrounds, positionalities, and teaching contexts, and then focused on details of the participant’s experiences teaching with *Healing Earth*. In the second
interviews I asked the participants to reflect on the meaning of these experiences and to respond to my initial interpretations of data from the previous interview. (See Appendix B, Guiding Interview Questions.)

**Exploratory Data Analysis**

I used an exploratory approach in collecting and analyzing interview data. Stebbins (2008a) describes *exploratory data analysis* as simultaneously a methodological approach and personal orientation of the researcher. In contrast to confirmatory data analysis, exploratory data analysis is a process that begins with the data collection phase. During and immediately after conducting interviews, I wrote ideas, observations, and possible emergent themes in memos which informed my later phases of data analysis. I proceeded to analyze the data in three phases. First, I wrote a vignette for each participant, which is included in Chapter 4. Next, I conducted cross-case analysis identifying themes that emerge across multiple cases. Finally, I made general connections across the cases and applied these findings to make broader arguments about the use of *Healing Earth* in education.

**Implications**

This study’s findings will be of interest to education practitioners and scholars, especially those with interest in ecology and holistic approaches to education. Up to this time, there has been little research into integral ecology in education. To my knowledge, this is the first study conducted on *Healing Earth*, which is probably the most significant curriculum project to have been developed in the field of integral ecology education. I
believe that educators’ accounts offer important insights into the hopeful possibilities of teaching ecology with an integrated, spiritually and ethically grounded curriculum.

**Limitations**

This study design has several limitations. To begin, the range of data sources is relatively narrow. Even though in-depth interviews provide rich and valuable data, a more varied combination of data sources would have enhanced the design. Most of all, this study would have been strengthened by the inclusion of student voices through student interviews, focus groups, or classroom observations.

An inherent limitation of interview research is that participants’ accounts are not wholly reliable. As Gillham (2000) explains, interview researchers can expect to find discrepancies “between what people say about themselves and what they actually do” (p. 13). This discrepancy is usually unintentional, as people’s memories and perceptions are easily misconstrued. These narratives are still valuable, however, in revealing the lasting impressions of participants’ experiences.

As with all case study research, this study’s findings are not generalizable in the conventional sense. Due to *Healing Earth*’s academic level and context, my participant sample is limited in representation to secondary- and university-level educators in Catholic institutions. Still, my hope is that this study will contribute ideas that are relevant to educators at all levels in all varieties of faith-based and secular institutions.¹

¹ The authors of *Healing Earth* designed the curriculum to be appropriate for use in institutions of any or no religious affiliation (though I am not currently aware of any examples of its use outside of Catholic institutions).
My own biases inevitably had some degree of influence on the participants’ accounts and on my analysis of the data. This is unavoidable in qualitative research and, to some degree, in all research. I have done my best to approach all aspects of this study with fairness, honesty, transparency, and humility. I believe my personal biases can serve as a strength rather than a liability, as this research is motivated by my deep personal commitment to ecological issues and my hope for a better future. For the sake of transparency, I offer a description of the positionality I bring to this study in the following section.

**Researcher Positionality**

To provide transparency and insight, I describe relevant aspects of my positionality in this section. First, I present a personal artifact and explain its significance. Next, I provide an overview of my career as an educator, which includes discussion of my nationality and international experience. I then describe my religious background and spiritual identity, including discussion of the political, ethical, and ecological implications of my spirituality.

**Personal Artifact**

Here I present a personal artifact and explain its meaning to me. This mirrors the structure of the vignettes I use to present my interview results in Chapter 4, as each of my interview participants introduced themselves by sharing personal artifacts. I shared the image below (see Figure 4), a ceramic mug I made, to introduce myself to the interview participants before meeting them. I provided this explanation to participants to explain the significance of the artifact:
I am an amateur potter, and my artifact is a mug I made that I use regularly. Like many people, I often struggle to be attentive to the world around me, amid the anxieties and distractions of twenty-first century life. My pottery practice helps me to declutter my mind and feel more present in the world.

Before discussing my positionality as an educator and my spirituality, I will further explain what my pottery practice means to me and how it relates to the themes explored in this dissertation.

Figure 4

*Researcher’s Artifact: Ceramic Mug*
I began studying pottery as an undergraduate student. During this transformative period of my life, working with clay helped me to process the new ideas and perspectives I was being exposed to. The pottery process—an interplay of earth, water, wind, and fire—shaped my ways of thinking about nature, and my attention to the physical properties of clay fostered a sense of intimacy with Earth. Creating functional objects of beauty has helped me to resist the “compulsive consumerism” (Francis, 2015a, §203) of our “throwaway culture” (§16).

It was during my early studies of pottery that I first encountered the *Tao Te Ching*, a text that continues to challenge, comfort, and guide me. I have always delighted in Lao-Tzu’s use of pottery as a metaphor for the integrality of being and non-being, especially in Le Guin’s (1997) translation:

Hollowed out,  
clay makes a pot.  
Where the pot’s not  
is where it’s useful. (§11)

The Taoist precept of “acting without expectations” (Mitchell, 1998, §10) was especially important in my early practice of pottery, when I would collapse more pieces than I completed. Recalling the message ascribed to Martin Luther that we should plant a tree even if we knew the world would end tomorrow, this precept frees us to act in defense of Earth without the paralysis of fear. The Taoist concept of non-action, or *wuwei*, is also

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2 Among the translations of the *Tao Te Ching* that I turn to often are Alegría & Flakoll (2015), Le Guin (1997), and Mitchell (1988).
fundamental to my pottery practice. *Wuwei* does not mean doing nothing, but rather “not taking action that is against Natural Law” (Moon, 2015, p. 457). As a potter, I seek to work in harmony with the clay’s natural properties. This concept can also inform our approach to pro-ecological action. While action is necessary to protect Earth, we must also recognize that the ecological crisis was caused by excess of certain actions, so non-action is sometimes needed for Earth to heal.

**Positionality as Educator**

I was a senior in college when I first understood that I wanted to teach. Having considered many possible career paths, I aspired to do work that would have a positive impact on the world. While volunteering as a middle school tutor, I realized that teaching provided me with a sense of purpose and hope. That insight has remained true throughout the many iterations of my work as an educator. I spent the first decade of my career in classrooms teaching both high school Spanish and elementary education in a variety of contexts from a public school in the Bronx, New York, to international schools in Honduras, China, and Sierra Leone. I enjoyed teaching Spanish but found more fulfillment in elementary school teaching, both for the deeper relationships I was able to cultivate teaching one group of students throughout the day and for the opportunity to connect varied subjects across the curriculum. I entered Loyola University Chicago’s doctoral program in curriculum and instruction seeking to challenge myself in new ways and to explore new perspectives and possibilities in education. I helped to develop and teach in Loyola’s redesigned, field-based teacher education program, which allowed me to mentor teacher candidates while partnering with public and Catholic schools in
Chicago. I also worked with the Jesuit Refugee Service (JRS) to develop a curriculum for a teacher formation program that is used in several countries across four continents. I had intended to conduct dissertation research related to my work with JRS, but my plans changed when I accepted an offer to be Director of the Banjul American International School, a position I served for three academic years during which I took a leave of absence from my doctoral degree. Since returning to the US and while working on this dissertation, I have taught several Loyola courses, served in a student outreach role supporting Loyola students during the COVID-19 pandemic, facilitated service-learning projects for a university-based nonprofit organization, led a garden education summer program for middle school students, and coordinated an after-school enrichment program for elementary and middle school students in an urban public school.

My professional experiences influence my positionality in several significant ways. I have spent eleven years of my adult life outside of the US, mostly in the Global South. These experiences instilled an awareness of our global diversity and interconnectedness as well as solidarity and outrage at the exploitation and inequity of our global economic system. My international perspective is appropriate to this study of a globally-minded curriculum. Still, I am an American currently living in the US, which influenced the perspective of this research.

Even though all my participants teach at Catholic schools, I have relatively limited experience with Catholic education. I was educated in public schools from kindergarten through high school, and I attended one private and one public university before coming to Loyola. All my K-12 teaching experience was in public schools and
private international schools. I worked in partnership with two Catholic schools through Loyola’s teacher preparation program, but most of my work there was with public schools as well. Still, I have developed a strong connection and spiritual affinity for the Jesuits through my education at Loyola and my work with JRS. I approached this research eager to learn from Catholic educators’ experiences and to explore possibilities for education in Catholic contexts.

It is important to clarify that while I have considerable experience in and strong commitment to the field of education, I did not approach this research as an expert. Even though I am researching a curriculum that is largely grounded in science education, I do not have expertise in any scientific field. I do not pretend to have successfully achieved the educational aims I am calling for, or to fully know how to achieve them. I acknowledge that I have been a product of and contributor to some of the misguided educational approaches that I hope we can transcend, and my goal for this research is to contribute understanding toward a better path forward.

Even though I know that education is only part of the solution, my experiences have given me hope in the role that education can play in our progress toward a better world. Most of all, I find hope in young people, having been inspired throughout my career by young people embracing opportunities to make a meaningful difference in the world.

**Spiritual Positionality**

I have a Christian but not a Catholic religious background, which gives me an insider-outsider perspective on Catholic education and ideas. I grew up in a liberal
Christian household as the son of two ministers in the United Church of Christ (UCC), a politically progressive US-based mainline Protestant denomination. My siblings and I were raised with Bible stories and songs, prayers before meals, and a worldview centered on an infinitely loving God embodied in Jesus. My parents characterized Jesus as a nonviolent seeker of justice who lived in solidarity with the poor and disenfranchised. My parents are also lovers of nature who taught us to see Earth’s beauty as a reflection of God’s love.

We lived in three towns in Ohio during my childhood, and the family church was central to our lives in each place we lived. My relationship with church felt in a way like my relationship with school: I did not go by choice, but I generally tolerated it and sometimes enjoyed it. (Cookies after Sunday services were usually the highlight.) Occasionally I felt spiritually moved during church services or events, but I did not pursue religious activities beyond the participation expected of me. During my adolescent years, I began to resent the attention and scrutiny I received as a “PK” or “preacher’s kid.” After going off to a college more than a thousand miles from home, I gave little thought to attending church on my own. Yet even as I formed a lifestyle and identity apart from church, I came to understand that my religious upbringing was still part of me. I would still pray, for example, as an almost automatic response to experiences of intense joy, grief, or fear.

I continue to grow in understanding and appreciation of my spirituality. I have witnessed and participated in faith-based political action in defense of Earth, in opposition to war and the death penalty, and in support of social justice and human rights.
I have, at times, been active in UCC and Methodist churches and a Quaker Friends meeting house, and I have also learned much from Catholicism, Islam, Judaism, Buddhism, and Taoism. I am grateful that the openheartedness of my religious upbringing gave me the gift of feeling at home with worship in general. I identify with the way my favorite writer, Annie Dillard (who famously calls herself *spiritually promiscuous*) describes her spirituality:

I’m at home with Orthodox Jewish dogma, Hasidic dogma, Islamic dogma, godless Buddhist wisdom, and probably many other views. Christianity is huge. I’ve studied it for many years. I see no reason to leave the religion of my birth, the religion I know best. (Dillard, 2020, p. 27)

The variety of expressions of Christianity is so wide-ranging that I, like Dillard, am comfortable identifying as Christian, even though I am appalled by some of the views associated with Christian fundamentalism in my country.

My spirituality informs my ethical and political perspectives, which align with the ethical foundations of integral ecology that I describe in this dissertation proposal. I believe every person deserves a secure and dignified life, so I oppose war, capitalism, imperialism, and all forms of exploitation, oppression, and injustice. My ecological views are inextricable from my commitment to social justice because the ecological crisis threatens all people especially impoverished and oppressed communities. At the same time, I am intrinsically committed to honoring and protecting Earth, for Earth’s own sake and for the sake of all precious human and nonhuman lives in the Earth community. I have experienced peace, wonder, and awe through encounters with nature, which I have
come to understand as not only aesthetic but spiritual, as sacred encounters. I am grateful that the integral ecology framework so eloquently encapsulates the mutuality of these social, ecological, and spiritual understandings, and I feel privileged to dedicate my time and attention to these issues I care so deeply about.

**Organization of Dissertation**

This dissertation contains five chapters. The remaining chapters consist of a Review of the Literature and Theoretical Framework (Chapter 2), Research Methods (Chapter 3), Results (Chapter 4), and a Discussion of the results (Chapter 5).
CHAPTER II

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

This chapter provides an overview of integral ecology as a way of understanding Earth’s interconnectedness and humans’ role as part of Earth. My use of integral ecology as the conceptual framework of this dissertation study is largely based on the ideas presented in Pope Francis’s *Laudato Si’* (2015a), the most influential work to date in introducing integral ecology to mainstream discourse. The other foundational source in the development of my conceptual framework is *Healing Earth* (IJEP, 2020e), an integral ecology curriculum inspired by *Laudato Si’*, which examines ecological concerns contextually in connection with interrelated social, spiritual, political, economic, aesthetic, and ethical issues. In addition to these two main sources, this literature review draws on several other sources to clarify, complement, and provide context for the ideas and perspectives represented by *Laudato Si’* and *Healing Earth*.

For the sake of this dissertation study, I accept the working definition provided in *Healing Earth*, which defines integral ecology as “a way of understanding and studying the natural world that combines environmental science, environmental ethics, and environmental spirituality for the sake of actions that promote the well-being of nature and society” (IJEP, 2020e, para. 10). Integral ecology can serve as a framework not only for education but for many fields including law (Jaret & Pasquale, 2019), business (Jakobsen & Zsolnai, 2017), economics (Schneider, 2019), theology (Castillo, 2016),
anthropology (Henfrey, 2018), human development (Montini & Volpe, 2019), public health (Kerber, 2020), and political activism (Annett, 2019). Because integral ecology is not a clearly delineated movement or theory, I cite *Laudato Si’* as the seminal text for this framework to clarify that I draw primarily from Francis’ ideas and those of the Catholic ecotheological tradition generally, as opposed to other traditions such as Wilberian integral theory. I primarily confine this literature review to sources that are aligned with the ideas of *Laudato Si’*, but I make my own judgments in citing literature that I find worthwhile with the aim of illustrating my own interpretation of integral ecology.

I begin this chapter by explaining the terminology I have chosen to use in this dissertation. By explaining the reasoning behind my terminology choices, I aim to provide insight into the theoretical perspectives I apply to this dissertation study. I then discuss the complexity of the Christian context, making the case for using a conceptual framework rooted in Christianity despite claims that Christianity has negatively influenced humans’ relationship with Earth. I proceed with an overview of the ecotheological foundations of the integral ecology framework including themes of creation and destruction in the Bible; the teachings of early Catholic figures, most significantly Saint Francis of Assisi, who inspired Pope Francis’s ecological vision; some important ecological teachings and actions by recent and contemporary Christian figures; and connections with ecotheology in other faith traditions. Next, I offer an overview of *Laudato Si’* as the most influential publication to date on the concept of integral ecology. I then briefly review some other relevant ecological movements, clarifying the position of integral ecology in relation to each of them. Next, I provide an overview of historical
environmental education movements, Catholic and Jesuit education, and integrated and holistic curriculum, to provide context for the Healing Earth curriculum. I end the chapter with a review of Healing Earth, which is the focus of this dissertation study and the preeminent example of integral ecology curriculum.

Terms and Concepts

There are complex implications to the choices of terminology we use when discussing ecological issues. I take these decisions seriously knowing that my terminology choices could “influence not only [the] audience’s ethical attitudes but also the way the reader regards the entire community of nature” (Killingsworth & Palmer, 2012, p. 4). In this section, I explain the reasons for my terminology choices in this dissertation. I hope that some of these explanations will help to illuminate the philosophical orientation underlying my research. I do not mean to suggest that others should adopt the same terminology as me or that the terms I choose here are preferable to other terminology choices outside the context of this dissertation. Throughout the dissertation report, I repeat the terminology used by referenced sources and by research participants without judgment.

Anthropocentrism, Biocentrism, and Cosmocentrism

Anthropocentrism refers to a bias in favor of human values, needs, and experiences, ignoring or minimizing the value of non-human life and phenomena. Some degree of anthropocentrism is likely inevitable in human thinking, as all beings are bound to inhabit worldviews centered on their own kind (Berry, 1987). Still, extreme anthropocentrism has led people to commit atrocities against the nonhuman world, which
ultimately result in harm to humans as well. In contrast, a biocentric perspective values all life intrinsically and understands human life as part of a greater interconnected web of life. Cosmocentrism, also in contrast to anthropocentrism, emphasizes the grandeur of the universe as a whole while minimizing humans’ significance.

Climate Change

Authors refer to climate change using various terms including climate emergency, climate crisis, global warming, global heating, the greenhouse effect, and anthropogenic climate change. Climate change is the most broadly used of these terms and fits my purposes, keeping in mind that I do not use the term to refer to the ecological crisis more broadly.

Curriculum

My understanding of curriculum is expansive, having been influenced by the field of curriculum studies (e.g., Huebner, 1975; Miller, 2005; Pinar, 2004; Schubert, 1986). As Schubert (1986) observes, the term curriculum has several meanings, from content, lesson plans, and learning objectives, to educational experiences, social agendas, and currere (a process of reflection on one’s lived experiences). In this study, I am especially interested in the ways Healing Earth is converted from the written curriculum – a text intended to serve as a learning resource for students and a guide for teachers’ instruction – into a living curriculum, or real-life experiences of learning and discovery shared by students and educators. When I discuss curriculum as a field, I am referring broadly to all educators, scholars, policy-makers, and activists interested in exploring the timeless
questions of what schools are for, what schools ought to teach, what knowledge is of most worth.

**Earth**

Throughout this dissertation proposal, I use the name *Earth* for our living global ecological system. *Earth* denotes the totality of our planet inclusive of all the life that inhabits it: the global human community, every living being, every nonliving thing, and the unending web of relationships among us. I sometimes use the term *Earth community*, commonly used by the ecotheologian Thomas Berry (1988, 1999) and by thinkers in the deep ecology movement (e.g., Sessions, 1995), to describe the community of all living beings, of which we are part, inhabiting Earth together.

Many ecotheologians refer to Earth as *creation*, as Pope Francis does at times in *Laudato Si’*. I find *creation* a beautiful and powerful term as it evokes a sense of Earth as sacred, as a miracle. However, I have chosen not to use *creation* to avoid any impression of an unscientific creationist predisposition. I hope that my use of *Earth* as a name, always a proper noun, conveys some of the reverence of *creation* and of names such as Gaia and Mother Earth. I always use the name *Earth*, never replaced by a pronoun, because English does not provide an appropriate pronoun for this purpose. For the same reason, I avoid referring to any living beings by the pronoun *it*. Kimmerer (2017) explains that in some indigenous languages such as Potawatomi, living beings are never called by the same pronoun as nonliving objects but are “spoken of with the same respectful grammar as humans are as if we were all members of the same family. Because we are” (para. 6). Kimmerer contends that the tenets of Western language “declare other
beings to be less than ourselves, just things” (para. 12), imparting a harmful belief “that humans alone are possessed of rights and all the rest of the living world exists for human use” (para. 7).

**Ecological Crisis**

As I explain in Chapter 1, the term *ecological crisis* refers to the intersection of various interrelated crises including climate change, pollution, and deforestation, and biodiversity collapse, that is causing a widespread collapse in our global ecosystem. Climate change is the most widely discussed component of the ecological crisis and arguably the most threatening, but I believe *ecological crisis* conveys the enormity and complexity of the entire situation more fully than *climate crisis*.

**Ecology and Environment**

I prefer to use the terms *ecology* and *ecological* rather than *environment* or *environmental*, but I alternate between these terms depending upon the context. *Environment* means all that which surrounds us, implicitly conveying a separation between humans and the rest of Earth and positioning us, humans, at the center. This is in contrast to the integral perspective of Earth as the context and sustaining source of our existence, and of ourselves as inseparably part of Earth. The implication of the environmental framework is that the value of our environment (Earth) is considered only through the perspective of human perception and human need. This utilitarian value system is characterized by the exploitation of resources rather than belief in the intrinsic value of nonhuman life. Relatedly, this framework commonly views the environment principally as a problem to be solved (Davoudi, 2012; Hammond, 1988), with little
appreciation for Earth’s complexity, beauty, and abundance, and with little attention to the lessons Earth may offer for us. In contrast, ecology, commonly a subject or unit within the science curriculum, tends to focus almost exclusively on nonhuman life. Ecology curriculum (and its antecedents, nature study and outdoor education [Li, 2011, p. 283]) offers enormous value in its attention to the intricate interrelationships of nonhuman lives. However, this strand of curriculum has largely ignored the ecological role of humans, except to note humans’ disruptive effects on ecosystems from the outside. In this way, ecology curriculum, like environmental curriculum, has reinforced a view of humans as separate from rather than part of Earth’s complex web of life. Furthermore, in seeking to maintain an imagined standard of scientific objectivity, ecology curriculum has often ignored the ethical dimensions of the phenomena it explores.

**Ecotheology**

I use the term ecotheology in reference to writings or teachings within any religious tradition that have a significant focus on ecological or environmental themes. In this dissertation proposal, my discussion of ecotheology focuses mostly on the Christian tradition, and especially the Catholic tradition, because my conceptual framework is based on *Laudato Si’* (Francis, 2015a), which is a Catholic text. However, I believe that all spiritual traditions should be represented in integral ecology curriculum, as exemplified by *Healing Earth.*
**Fragmentation**

My use of the term *curriculum fragmentation* is inspired by the curriculum theorizing of Jardine, LaGrange, and Everest (2004). This term describes what Miller (1988) calls *atomism*, the “segmentation and reduction of the curriculum into small, separate units” (Miller, 1988, p. 13). The paradigm of fragmentation is ubiquitous and rarely questioned. For example, students learn that knowledge is divided into various subjects such as math, science, language arts, social studies, and art, without examining the ways knowledge is connected across these subjects. This teaches us to perceive the world as fractured rather than whole and interdependent.

**God**

My use of the term God most commonly represents the views of ecotheological thinkers in the Christian (usually Catholic) tradition. At the same time, I attempt to refer to God in a broad and inclusive way given the context of this dissertation study. I avoid using gendered pronouns in reference to God, and I aim for my discussions to be applicable to people of any or no faith.

**Integral Ecology**

*Integral ecology* is “a way of understanding and studying the natural world that combines environmental science, environmental ethics, and environmental spirituality for the sake of actions that promote the well-being of nature and society” (IJEP, 2020e, para. 10). Integral ecology serves as the conceptual framework of this dissertation study, based on the ideas presented by Pope Francis’s (2015) *Laudato Si’* and IJEP’s (2020j) *Healing Earth* project.
Integrated and Holistic Curriculum

I use the term integration to describe the connection of content across the traditionally compartmentalized categories of curriculum. I prefer the descriptor integrated to terms such as interdisciplinary, cross-disciplinary, or transdisciplinary, because the former emphasizes the process of making connections, while the latter terms are implicitly framed around the existence of disciplines even as they seek to avoid barriers between the disciplines.

The terms integral and holistic describe an understanding of all topics as interrelated aspects of a unified system, which is the ultimate aim of curricular integration.

Nature, Natural, and Unnatural

Nature is a difficult concept to define and overlaps somewhat with my use of Earth. It is easiest to begin by defining what we understand to be unnatural: that which has been altered by humans. Yet by that definition we no longer have nature, as McKibben (1989) explained, because all of Earth has been altered by climate change. I have previously used Selhub and Logan’s (2012) definition of nature, which I still like: “the nonbuilt, nonsynthetic environment—sights, sounds, aromas, rivers, oceans, plants, animals, and light in as close a form as possible to that from which we evolved” (p. 2). This definition implicitly acknowledges that there is no definite separation between the natural and the unnatural. This is important, as humans’ inseparability from nature is a key understanding of integral ecology. Still, I believe it is important to acknowledge our
innate awareness of the distinction between the natural and the unnatural, because it is imperative we learn to live in ways that are more closely aligned with nature.

**Pro-Ecological**

I use the term *pro-ecological* to broadly describe beliefs and actions that seek to heal or protect Earth, including influencing policies or the beliefs or actions of other people toward this end. This term is inclusive of both *environmental* efforts, which tend to be anthropocentric, and *ecological* efforts, which tend to be more Earth-centric.

**Reflection, Contemplation, and Discernment**

The related concepts of *reflection*, *contemplation*, and *discernment* are fundamental to the Jesuit tradition as well as many other spiritual and educational traditions. My use of *reflection* is consistent with the Jesuits’ understanding:

> We use the term *reflection* to mean a thoughtful reconsideration of some subject matter, experience, idea, purpose, or spontaneous reaction, in order to grasp its significance more fully. Thus, reflection is the process by which meaning surfaces in human experience. (Secretariat for Education of the Society of Jesus, 1993, §51)

Similarly, a *contemplative* approach “attempts to combine the world of human spiritual experience with the experience of everyday life through self-reflection, analysis, experience of the other, etc.” (Pasierbek, 2016, p. 11). The Ignatian approach calls for a “dialectic of action and contemplation” through the process of *discernment*, which involves “getting the facts and then reflecting, sorting out the motives that impel us, weighing values and priorities, considering how significant decisions will impact on the
poor, deciding, and living with our decisions” (Secretariat for Education of the Society of Jesus, 1993, §134-§135).

**Religion and Spirituality**

The terms *religion* and *religious* here refer to practices and beliefs aligned with established doctrines or institutions, while *spiritual* and *spirituality* refer to people’s experiences of sacredness or transcendence, which can occur in connection to or apart from religion. Sometimes these words can be interchangeable, and sometimes not. In instances where either term could apply, I tend to use *spirituality* because I prefer to emphasize the power of personal experience over institutional structures. I believe there is a universality to humans’ spiritual experiences across space and time – that “The human sense of the sacred is a fact” (Robinson, 2015, p. 241) – though I recognize that there are many people who do not identify as spiritual.

**We**

Any time I use the term *we* (unless there is a modifier, as in “we as educators”), I am referring to the human species collectively. I emphasize this collectivity because we are all connected in this planetary ecological system. We are in this together, and we need to change globally and collectively in order to overcome the ecological crisis. This should not be taken to imply that all people are equally complicit in the exploitation, overconsumption, recklessness and greed that brought about the crisis, but I find it difficult to envision a better future without a shift of power away from those most responsible for our problems, and I find it necessary to believe that we, humankind as a whole, will prove that we are better than this.
Laudato Si’s Integral Ecology Framework

This dissertation’s conceptual framework of integral ecology is primarily based on Pope Francis’s (2015a) encyclical Laudato Si’: On Care for Our Common Home. The name Laudato Si’ comes from the invocation of Saint Francis of Assisi: “Praise be to you, my Lord, through our Sister, Mother Earth, who sustains and governs us, and who produces various fruit with coloured flowers and herbs” (quoted in Francis, 2015a, §1).

As Kureethadam (2019) notes, Laudato Si’ “covers a wide range of issues spanning from climate change to creation theology and from favelas to coral reefs” (p. xvi). In this section I provide an overview of the encyclical’s teachings with emphasis on its development of the integral ecology framework.

Context and Significance

Laudato Si’ is the second and longest of three encyclicals that Pope Francis has published so far. Francis’s first encyclical, Lumen Fidei: The Light of Faith (Francis, 2013b), is an exploration and celebration of the power of Christian Faith that had been partially written by Pope Benedict XVI, Francis’s predecessor, before Benedict resigned from the papacy. Francis’s third and most recent encyclical, Fratelli Tutti: On Fraternity and Social Friendship (2020), reaffirms and expands upon the social vision and analysis of Laudato Si’ while drawing upon Catholic social teaching (O’Neill, 2021) to present radically compassionate messages on issues including racism, migrants’ rights, interfaith relations, gender equality, the death penalty, and war. Fratelli Tutti, like Laudato Si’, argues that the ecological deterioration of Earth, “our common home” (Francis, 2020,
§8), is inseparable from our the social, political, and economic systems that perpetuate poverty, war, and oppression.

As a papal encyclical, *Laudato Si’* does not merely represent Francis’s opinions; it is official doctrine of the Catholic Church (Irwin, 2016). Given this context, *Laudato Si’* is a relatively radical document establishing the “urgent need for us to move forward in a bold cultural revolution” (Francis, 2015a, §114). Francis does not intend for *Laudato Si’* to speak only to Catholics or even all Christians, but to all people on Earth including “those who firmly reject the idea of a Creator” (§62).

**Key Themes and Messages**

Early in the encyclical, Francis (2015a) identifies several themes that reappear throughout *Laudato Si’*:

- the intimate relationship between the poor and the fragility of the planet,
- the conviction that everything in the world is connected,
- the critique of new paradigms and forms of power derived from technology,
- the call to seek other ways of understanding the economy and progress,
- the value proper to each creature,
- the human meaning of ecology,
- the need for forthright and honest debate,
- the serious responsibility of international and local policy,
- the throwaway culture and the proposal of a new lifestyle. (§16)

One way Francis addresses these themes is by posing a set of “pointed questions” to promote dialogue and reflection:

What kind of world do we want to leave to those who come after us, to children who are now growing up? . . . What is the purpose of our life in this world? Why
are we here? What is the goal of our work and all our efforts? What need does the earth have of us? (§160)

Francis does not answer these questions for us, but he offers a framework for exploring these questions with scientific knowledge in combination with spiritual wisdom.

Kureethadam (2019) provides an accessible introduction to *Laudato Si’* by organizing its messages into “ten green commandments”:

I. Earth, our common home, is in peril. Take care of it.

II. Listen to the cry of the poor who are the disproportionate victims of the crisis of our common home.

III. Rediscover a theological vision of the natural world as good news (gospel).

IV. Recognize that the abuse of creation is ecological sin.

V. Acknowledge the deeper human roots of the crisis of our common home.

VI. Develop an integral ecology as we are all interrelated and interdependent.

VII. Learn a new way of dwelling in our common home and manage it more responsibly through a new economics and a new political culture.

VIII. Educate toward ecological citizenship through change of lifestyles.

IX. Embrace an ecological spirituality that leads to communion with God’s creatures.

X. Care for our common home by cultivating the ecological virtues of praise, gratitude, care, justice, work, sobriety, and humility. (p. 10)

Although “commandment” may not be the most apt term given Francis’s emphasis on dialogue and contemplation, this list aptly conveys the encyclical’s key ethical teachings.
Roles of Science and Technology

Francis (2015a) “[draws] on the results of the best scientific research available today” to identify not only the symptoms of the ecological crisis “but also its deepest causes” (§15). In Francis’s analysis, a “throwaway culture” that “quickly reduces things to rubbish” (§22) is at the heart of the various crises Earth faces today, including pollution, climate change, availability of clean water, and biodiversity collapse, as well as global inequality and other injustices in our social, political, and economic systems. Francis contrasts our throwaway culture with “the way natural ecosystems work,” which he considers “exemplary: plants synthesize nutrients which feed herbivores; these in turn become food for carnivores, which produce significant quantities of organic waste which give rise to new generations of plants” (§22).

While science enhances our understanding and appreciation of Earth’s natural processes, the ways we apply science can have harmful as well as beneficial effects. Francis’s discussion of “the human origins of the ecological crisis” (§101) analyzes the promises, limitations, and dangers of technology. Francis celebrates the “advances and … immense possibilities” of technology, “especially in the fields of medicine, engineering and communications” (§102). Lacking an integral perspective, however, technology “proves incapable of seeing the mysterious network of relations between things and so sometimes solves one problem only to create others” (§22). Francis cautions that “business interests” (§22) who direct the development of new technologies with the aim of “maximizing profits” (§109) have pushed, “the idea of infinite or unlimited growth,” which “is based on the lie that there is an infinite supply of the earth’s goods, and this
leads to the planet being squeezed dry beyond every limit” (§106). There are repercussions even beyond the dire ecological consequences. “The alliance between the economy and technology ends up sidelining anything unrelated to its immediate interests” (§54), racing to push new technologies into use without consideration of their effects on human dignity and quality of life. Decisions about the kinds of technology we will develop and produce “may seem purely instrumental” but “are in reality decisions about the kind of society we want to build” (§107). Francis calls on us to work toward “a sound ethics, a culture and spirituality genuinely capable of setting limits and teaching clear-minded self-restraint” (§105) to guide our development and application of technology. This means that in education, as in other sectors, we should “[promote] a different cultural paradigm” that is not dictated by technology but which “[employs] technology as a mere instrument” (§108) in our work to build a better world.

Role of Religion

Throughout *Laudato Si’*, Francis (2015a) emphasizes the importance of dialogue between science and religion to achieve an integral perspective. To “develop an ecology capable of remedying the damage we have done,” Francis asserts, “no branch of the sciences and no form of wisdom can be left out, and that includes religion and the language particular to it” (§63). Francis clarifies that “The Church does not presume to settle scientific questions or to replace politics,” but that his intent is to “encourage an honest and open debate, so that particular interests or ideologies will not prejudice the common good” (§188). The interests and ideologies to which Francis refers are evidently “business interests and consumerism” (§34), which “find ever new ways of despoiling
nature, purely for the sake of new consumer items and quick profit” (§191). Religious traditions offer an antidote to this “spiral of self-destruction which currently engulfs us” (§163). By rejecting “the ‘myths’ of a modernity grounded in a utilitarian mindset (individualism, unlimited progress, competition, consumerism, the unregulated market),” the spiritual path helps us to “[make] the leap towards the transcendent which gives ecological ethics its deepest meaning” (§210).

Francis bases his analysis primarily on “principles drawn from the Judaeo-Christian tradition which can render our commitment to the environment more coherent” (§15), while he “welcomes dialogue with everyone” (§64) and celebrates “the various cultural riches of different peoples, their art and poetry, their interior life and spirituality” (§63). *Laudato Si* does not aim to convert non-Christians to the Church, but rather “to show how faith convictions can offer Christians, and some other believers as well, ample motivation to care for nature and for the most vulnerable of their brothers and sisters” (§64). Francis describes Jesus as having a “tangible and loving relationship with the world” (§100) and offers ecological interpretations of several scriptures to show that Christians have a “duty towards nature and the Creator” (§64). The majority of Earth’s people are religious, more than 2 billion of whom identify as Christian. There is no doubt, as Francis asserts, that “It is good for humanity and the world at large when we believers better recognize the ecological commitments which stem from our convictions” (§64).

**Educational Implications**

Francis (2015a) views education as central to the work of ecological healing and justice, asserting that “change is impossible without motivation and a process of
education” (§15). Laudato Si’s discussions of education are not specific to schools; Francis asserts that ecological education “can take place in a variety of settings: at school, in families, in the media, in catechesis and elsewhere” (§213). Francis sees this educational work as part of a broader effort to develop “a distinctive way of looking at things, a way of thinking, policies, an educational programme, a lifestyle and a spirituality which together generate resistance to the assault of the technocratic paradigm” (§111). An important part of the “great cultural, spiritual and educational challenge … before us” (§202) is to cultivate appreciation of Earth’s beauty. “By learning to see and appreciate beauty,” Francis explains, “we learn to reject self-interested pragmatism. If someone has not learned to stop and admire something beautiful, we should not be surprised if he or she treats everything as an object to be used and abused without scruple” (§215). Francis describes a process of “ecological conversion” that may come about through this education, which “is one dimension of overall personal conversion” (§218). “Nevertheless,” Francis cautions, “self-improvement on the part of individuals will not by itself remedy the extremely complex situation facing our world today. . . . The ecological conversion needed to bring about lasting change is also a community conversion” (§218).

Our educational efforts, in Francis’s view, should “promote a new way of thinking about human beings, life, society and our relationship with nature” (§218). In accordance with the integral ecology framework, curriculum should strive for interdisciplinarity, recognizing the interconnectedness of the various studies and the various facets of life on Earth. These implications for curriculum are commonly
discussed in the context of Catholic education. Irwin (2016) argues several ways that Catholic universities should reimagine curriculum in light of *Laudato Si*’s teachings:

Along with numerous colleges and universities, Catholic institutions of higher learning sponsor programs in environmental *science*. However, in light of the encyclical might not a truly *Catholic* approach be to offer programs in environmental *studies*. This would mean that a truly interdisciplinary curriculum on the environment include the sciences, politics, economics, law, philosophy, and theology. The reimagining of a curriculum around ecology could be the stimulus for colleagues to work together to craft a curriculum that is of the highest quality academically and yet be both contemporary and interdisciplinary. In addition, each of these individual fields in the university curriculum (for example, sciences, politics, economics, law, philosophy, and theology) should be required to have ecology and the environment as part of their own curriculum. (pp. 215-216)

Lane (2015) considers the “anthropological implications of the educational challenge” (p. 51) presented in *Laudato Si’,* especially the need to overcome the extreme anthropocentrism that Francis identifies as a source of ecological crisis. Lane calls for “ecological education [to become] an intrinsic element within Catholic education,” with the goal of “ecological conversion” (p. 54) on both the individual and community levels.

*Laudato Si’*’s educational vision has been put into practice most notably in the International Jesuit Ecology Project’s (IJEP) development of the *Healing Earth* curriculum, which I describe later in this chapter.
Ecotheological Foundations of Integral Ecology

This section provides an overview of ecotheological teachings that are the foundation of the integral ecology framework presented by Pope Francis in *Laudato Si’*. For the purposes of this dissertation proposal, I focus on Catholic and Christian ecotheology and not on other religious traditions. This is because my conceptual framework is rooted in the Catholic ecotheological tradition and does not mean that I view Christianity’s ecotheological contributions as more significant than or superior to the contributions of other religions. I acknowledge in the first subsection that Christianity has been complicit in ecological harm. However, my interest here is in exploring ways that Christianity can serve as a foundation for ecological healing, so the remainder of the section focuses on pro-ecological teachings and practices within Christian and Catholic traditions.

This section begins with a discussion of controversies and contradictions in the ecological influence of Christianity, including commentary on my own view of Christianity’s complex ecological legacy. I then review of some interpretations of ecological themes found in Christian scripture. Next, I discuss some early Catholic figures who significantly influenced Pope Francis’s conception of integral ecology. I go on to present some recent and contemporary examples of pro-ecological leadership and action in Christianity. Finally, I discuss connections among ecotheology in Christianity and other religious traditions.
Ecology and Christianity: Controversy, Complexity, and Context

The ecological influence of Christianity has long been a topic of controversy. In 1967, Lynn White Jr. famously argued that Christianity bears much of the blame for the ecological crisis. White (1967) pointed to several aspects of the Christian worldview that can be interpreted as promoting humans’ separation from and exploitation of Earth, including “an implicit faith in perpetual progress” (p. 1205); an extreme form of anthropocentrism in which humans are uniquely created in God’s image; and “a dualism of man and nature” coupled with the belief that “it is God’s will that man exploit nature for his proper ends” (p. 1205). White identified Saint Francis of Assisi as a singular exception within Christianity who “tried to depose man from his monarchy over creation and set up a democracy of all God’s creatures” (p. 1206). In White’s analysis, however, Saint Francis is the exception that proves the rule, as his ideas of kinship among Earth’s human and nonhuman inhabitants were “quickly stamped out” (p. 1207) by church leaders.

White’s (1967) argument has become one of the most widely cited articles ever published in the journal *Science* (Taylor, 2016), with many authors taking issue with White’s claims. Curry (2018) summarizes some of the most common refutations of White’s thesis:

(1) other very different interpretations of the Bible are possible; (2) pre-Christian humanity also engaged in many bouts of ecological destructiveness (mass felling of forests, the hunting of some megafauna to extinction, etc.); (3) non-Christian
people have done the same; and (4) the ecocrisis didn’t really gather pace until the Industrial Revolution in the nineteenth century. (p. 33)

Snyder (2011) points out that the era of ecological degradation has coincided with a decline in the influence of religion, which seems to indicate that people have increasingly exploited Earth as they abandoned belief in Earth’s sacred origins. Additionally, many authors (e.g., Gottlieb, 2007; Grim & Tucker, 2014; Sponsel, 2014) have argued that Christianity has become more environmentally friendly in the time since the publication of White’s argument in 1967. For example, White observed that Saint Francis’s ecological sensibilities had been largely rejected by Christian institutions, but Pope John Paul II named Saint Francis the patron saint of ecology in 1979 (Taylor, 2016), and Saint Francis has been increasingly venerated throughout Christianity as awareness of the ecological crisis has increased. In the section below I discuss several other examples of pro-ecological messaging and action in Christianity. However, it is difficult to make a case that Christianity’s ecological influence has been overwhelmingly positive overall. Taylor, Wieren, and Zaleha’s (2016) analysis of over 700 articles found “both positive and negative relationships between Christian traditions and environmental orientation” (p. 1004), but their overall findings refute the idea that Christianity’s general impact on ecological behavior has been significantly positive.

Christianity obviously is not wholly to blame for the ecological crisis, but there is no question that many people have used Christian doctrine to justify the destruction of Earth. Still, I see great promise in the integral ecology framework rooted in Christianity. Even if we accept White’s (1967) conclusion that to overcome the ecological crisis we
must either “find a new religion, or rethink our old one” (p. 1206), there is a strong pragmatic argument for rethinking rather than abandoning our existing traditions. There are more than two billion Christians today, more than one billion of them Catholic (Lipka, 2015), and Christianity has considerably more pro-ecological momentum today than at the time of White’s argument a half-century ago, with Pope Francis as Christianity’s most powerful leader and *Laudato Si*’ now official Catholic Church doctrine.

My belief in the pro-ecological possibilities of Christianity is based less on pragmatic calculation than on inspiring examples of Christians who have acted on their faith for a healthier Earth. Among many examples of ecological leadership and action within Catholicism is a loosely affiliated network of sisters religious known as green sisters, green nuns, or eco-nuns (Dwivedi & Reid, 2007) who adopt “environmentally sustainable lifestyles both as daily spiritual practice and as models to others” (Taylor, 2009, p. 2). A well-known figure in this movement is Sister Miriam MacGillis, a Dominican sister who founded Genesis Farm in New Jersey, US (Taylor, 2002), with a mission guided explicitly by the teachings of Thomas Berry (Genesis Farm, 2021), founder of the Catholic movement for integral ecology. Green sisters view their ecological activism as a continuation of a longstanding tradition within Catholicism of sisters religious acting in response to the urgent needs they encountered:

Historically, when orphanages were needed in North America, religious sisters’ communities built orphanages. When hospitals were needed, sisters built hospitals and staffed them. When schools were needed, sisters built schools and taught in
them. When peace and social justice concerns intensified, especially in the context of the Vietnam War, the civil rights movement, the political violence in Central America, and the widening economic disparities between wealthier countries and the world’s poor, sisters formed ministries to respond, including commissions on peace and justice that took sisters’ lobbying efforts to Congress and the United Nations. Today, sisters are hearing and answering a call from the earth, and it is to those needs that they are directing their efforts. (Taylor, 2009, p. 2)

I have witnessed many examples of Christians who have acted out the principles of integral ecology, courageously defending and advocating for the poor, displaced, and suffering, and for the well-being of all human and nonhuman members of the Earth community. While it may be true that “the bulk of the Christian agenda overall remains strongly anthropocentric, compared to which ecological Christianity remains a minority and controversial concern with a long way to go” (Curry, 2018, p. 35), there is reason for hope in Christianity’s potential to work toward justice and healing.

Ecotheology in Scripture

Ecological themes arise in various ways throughout the Bible, starting from the very beginning. Here I provide an overview of some ecologically significant parts of the Bible and their ecotheological interpretations. I organize this discussion into two subsections. The first subsection discusses parts of the Bible that teach about creation and the inherent goodness of Earth. The second subsection discusses how the theme of
ecological destruction arises in the Bible. All Bible quotes in this section are from the New Revised Standard Version Bible (1990).

**Creation and the Goodness of Earth**

Genesis, the first book of the Bible, offers two different accounts of God’s creation of Earth. These creation stories, which appear in Genesis chapters 1 and 2, are arguably the most ecologically important parts of the Bible, and there is much debate over their ecological implications. In Genesis 1, which is considered the more cosmocentric of the two narratives (Alter, 1996; Bouteneff, 2008; Okyere, 2011), God first creates Earth, the day and night, the lands and seas, the grass and herbs and trees, and “every living creature that moves” (Genesis 1:21), before creating humans (male and female together). In the more anthropomorphic creation story of Genesis 2 (Alter, 1996; Bouteneff, 2008; Okyere, 2011), “God formed man from the dust of the ground, and breathed into his nostrils the breath of life” (Genesis 2:7) before preparing the Garden of Eden and creating a woman from one of the man’s ribs. The two accounts offer contrasting visions of the relationship between God, humans, and Earth. In Genesis 1, God’s presence seems more distant; the act of creation occurs through God’s speech, after which God seems to appraise creation from afar. The second account is more localized, all taking place within the garden, and more intimate. The God of Genesis 2 forms the man out of dust using God’s own hands, converses with the man and woman, and walks among them in the garden.

There has long been debate over whether Genesis’s creation stories direct us to practice *dominion* over Earth or *stewardship* of Earth (Bauckham, 2010; Curry, 2018).
Justification for the dominion thesis is found in the statement that God created men and women “in the image of God” (Genesis 1:27), a distinction granted to no other part of God’s creation. In Genesis 1:26, God offers humans “dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the wild animals of the earth, and over every creeping thing that creeps upon the earth.” Similarly, in Genesis 1:28, God instructs humans to “Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth.” Alternatively, many passages support the stewardship thesis, such as the statement in Genesis 2:15 that God put the first human “in the garden of Eden to till it and keep it,” which implies a responsibility to care for rather than exploit Earth (Bauckham, 2010). Obviously, ecotheologians prefer stewardship to dominion, but some ecotheologians resist both theses, urging us to recognize ourselves as part of creation rather than being apart from or having power over creation. In the two creation stories, humans share a common origin with the rest of creation. McFague (1993) observes that Genesis 1’s account of a unified, interconnected cosmos is consistent with the view of modern physics that “we are all made of the ashes of dead stars” (p.39). Baker-Fletcher (1998) emphasizes Genesis 2’s teaching that we are made of dust and the breath of God; this means that our lives, along with the rest of creation, belong not to us but to God. In Genesis 3, the story of humans’ original sin and banishment from the Garden of Eden follows from the second creation story. Among the many interpretations of this story, ecotheologians tend to believe that the problem of original sin, represented in Genesis by Adam and Eve’s eating of the forbidden apple, is
directly connected to our ecological misconduct. Many authors (e.g., Bauckham, 2010; Bredin, 2010; Snyder, 2011) interpret Adam and Eve’s banishment from the Garden of Eden as the consequence of humans’ sinful belief in our superiority over the rest of creation.

The most basic and arguably the most ecologically significant message in all the Bible is Genesis 1’s repeated declaration that, after creating Earth, God “saw that it was good” (Genesis 1:4, 10, 12, 18, 21, & 25). The assertion that Earth is good and beloved by God, is fundamental to ecotheology and is supported in many other parts of the Bible. Some of the most stirring examples appear in the Book of Psalms, which praises the majesty of God’s creation:

You make springs gush forth in the valleys; they flow between the hills, giving drink to every wild animal; the wild asses quench their thirst. By the streams the birds of the air have their habitation; they sing among the branches. From your lofty abode you water the mountains; the earth is satisfied with the fruit of your work. You cause the grass to grow for the cattle, and plants for people to use, to bring forth food from the earth, and wine to gladden the human heart, oil to make the face shine, and bread to strengthen the human heart. (Psalms 104:10-15)

Elsewhere, Psalms calls on all of Earth to join in praise of God:

Praise the Lord from the earth, you sea monsters and all deeps, fire and hail, snow and frost, stormy wind fulfilling his command! Mountains and all hills, fruit trees and all cedars! Wild animals and all cattle, creeping things and flying birds! (Psalms 148:7-10)
The prophet Isaiah also speaks of Earth’s creatures praising God: “The wild animals will honor me, the jackals and the ostriches; for I give water in the wilderness, rivers in the desert” (Isaiah 43:20); “the mountains and the hills before you shall burst into song, and all the trees of the field shall clap their hands” (Isaiah 55:12).

The book of Job presents a strikingly cosmocentric depiction of God’s creation. After Job suffers the death of his children, the loss of all his property, and excruciating physical ailments, God speaks directly to Job and allows Job to look upon God directly. God’s power, beyond Job’s comprehension, is presented primarily through description of God’s creation. Job is left awestruck, still unable to grasp the reason for his suffering but viewing it in a new light: “I have uttered what I did not understand, things too wonderful for me, which I did not know. . . therefore I despise myself, and repent in dust and ashes” (Job 42:3-6). Job’s encounter with God leads him to “[rejoice] in how the nonhuman creation is wild, free from the hand of man” (Rolston, 1996, p. 25). God invites Job to exercise neither dominion nor stewardship over Earth, but merely to be humbled by Earth’s power and grateful for the sustenance Earth provides. God’s love for Earth and God’s presence in Earth are evident in God’s words to Job:

> Who has cut a channel for the torrents of rain, and a way for the thunderbolt, to bring rain on a land where no one lives, on the desert, which is empty of human life, to satisfy the waste and desolate land, and to make the ground put forth grass? (Job 38:25-27).

Here God’s message is that God loves not only humans but all of Earth, reiterating the first opinion God expresses in Genesis 1, that God’s creation is good. This is a message
found at various times throughout the Bible. Jesus famously assured his followers of God’s care for every sparrow (Matthew 10:29; Luke 12:6), echoing similar messages in scripture such as God’s declaration in Psalms that, “I know all the birds of the air, and all that moves in the field is mine” (Psalms 50:11). From this clear teaching that God loves Earth and all of Earth’s inhabitants, we should conclude that God wants us to care for Earth, and that the desecration of Earth is an affront to God.

**Flood and Annihilation**

An ecological counterpoint to the creation narratives comes just a few chapters later in Genesis with the story of Noah and the great flood, in which God becomes so disturbed by “the wickedness of humankind” (Genesis 6:5) that God decides to destroy all life on Earth. God makes an exception for Noah, the one man who “found favor in the sight of the Lord” (Genesis 6:8), and instructs Noah to build a great ark. When God “[blots] out every living thing that was on the face of the ground, human beings and animals and creeping things and birds of the air” (Genesis 7:23), Noah’s family survives on the ark along with a reproducing pair of every species. God then forms a rainbow as “a sign of the covenant between [God] and the earth” (Genesis 9:13).

Interpretations of the Noah story are varied. Some find permission in this story to exploit and dominate the rest of Earth (Wu, 2013), as when God tells Noah and his sons,

The fear and dread of you shall rest on every animal of the earth, and on every bird of the air, on everything that creeps on the ground, and on all the fish of the sea; into your hand they are delivered. Every moving thing that lives shall be food
for you; and just as I gave you the green plants, I give you everything. (Genesis 9:2-3)

God’s covenant that “never again shall there be a flood to destroy the earth” (Genesis 9:11) has also been used as a basis for denying climate change (Fair, 2018; Kempf, 2017). Yet for many, the story of Noah and the flood has been a source of hope and inspiration for pro-ecological action. God’s covenant with Noah inspired a wide network of Christians to form a “Climate Covenant” advocating for policies and behaviors to reduce climate change (Bodenham, 2005). In Pope Francis’s (2015a) interpretation, the story of Noah teaches us that we still have “the chance of a new beginning. . . All it takes is one good person to restore hope!” (§70).

The flood story is the first of many instances of the Bible to consider an end to life on Earth. Among the prophecies of the Old Testament, Isaiah offers this dark vision:

See, the day of the Lord comes, cruel, with wrath and fierce anger, to make the earth a desolation, and to destroy its sinners from it. For the stars of the heavens and their constellations will not give their light; the sun will be dark at its rising, and the moon will not shed its light. I will punish the world for its evil, and the wicked for their iniquity; I will put an end to the pride of the arrogant, and lay low the insolence of tyrants. I will make mortals more rare than fine gold, and humans than the gold of Ophir. Therefore I will make the heavens tremble, and the earth will be shaken out of its place, at the wrath of the Lord of hosts in the day of his fierce anger. (Isaiah 13:9-13)
Jesus, too, prophesies an end to Earth’s life as we know it, though Jesus acknowledges that “about that day and hour no one knows, neither the angels of heaven, nor the Son, but only the Father” (Matthew 24:36):

For nation will rise against nation, and kingdom against kingdom, and there will be famines and earthquakes in various places. . . Woe to those who are pregnant and to those who are nursing infants in those days! . . . For at that time there will be great suffering, such as has not been from the beginning of the world until now, no, and never will be. . . Immediately after the suffering of those days the sun will be darkened, and the moon will not give its light; the stars will fall from heaven, and the powers of heaven will be shaken. (Matthew 24:7-29)

The most elaborate description of Earth’s demise is found in Revelation, the Bible’s enigmatic final book. Among much cryptic and disturbing imagery, this narrative describes angels participating in the destruction of Earth:

"Use your sickle and reap, for the hour to reap has come, because the harvest of the earth is fully ripe." . . . So the angel swung his sickle over the earth and gathered the vintage of the earth, and he threw it into the great wine press of the wrath of God. And the wine press was trodden outside the city, and blood flowed from the wine press, as high as a horse's bridle, for a distance of about two hundred miles. (Revelation 14:15-20)

Pope Francis implicitly advises against literal interpretation of the Bible’s “ancient stories, full of symbolism” (Francis, 2015a, §70). Still, these stories have much to teach us. In a direct and powerful way, stories like the great flood “[tell] us that life itself is
“endangered” (§70), which should lead us to act with the urgency that our present moment demands. These stories can also inform our understanding of integral ecology. God’s threat “to do away with humanity” results from humankind’s “constant failure to fulfil the requirements of justice and peace” (§70), just as the apocalyptic events of Revelation appear in response to humans’ immoral behaviors. In this way, these stories promote the “conviction which we today share, that everything is interconnected, and that genuine care for our own lives and our relationships with nature is inseparable from fraternity, justice and faithfulness to others” (§70).

Much of Earth’s coastal and island land is in imminent danger of disappearing amid rising sea levels due to climate change. In this context, the story of the great flood takes on new significance. Some Christian Pacific Islanders have interpreted the flood story to mean either that they have brought on this fate due to their own sinful actions, or that such an outcome is impossible due to God’s covenant (Bertana, 2020; Loughry & McAdam, 2008; Rubow & Bird, 2016). Yet there are other ways of understanding the story. Fair (2018) discusses an alternative reading of the story expressed by Christians on the island nation of Tuvalu. This perspective centers the lives of those outside the ark who are destroyed in the flood, in a manner consistent with the core belief of liberation theology that God suffers with the poor and the oppressed (Boff & Boff, 1987). While still “[emphasizing] the need for human action” (Fair, 2018, p. 11), this reading ascribes guilt to Noah for ignoring all the suffering around him. In the words of a Tuvaluan Christian named Ezekiel,
Those outside the ark need to be liberated and I think God is with those who are outside the ark. God is struggling with them, trying to alleviate them while Noah is enjoying the luxury life, you know. And ... I think we can identify ourselves with those who are outside the ark. Those who don't have the resources to be on Noah's ark. (Ezekiel, Church of Tuvalu, quoted in Fair, 2018, p. 11)

In Fair’s (2018) analysis, this reading of the flood story “[demonstrates] the potential for more-than-scientific yet not anti-scientific responses to climate change, which are locally meaningful and morally compelling” (p. 11). Rolston (1996) similarly argues that an “encounter with these ancient scriptures” creates the opportunity for a type of “evaluation of who we are and where we are” (p. 26) that science alone cannot provide.

**Influences of Early Catholic Figures**

Just as ecological themes are present throughout the Bible, we can find many examples of ecological messages in early Catholic teaching. Here I discuss a few early Catholic figures who have significantly influenced *Laudato Si*’ and Christian ecotheology more broadly.

**Saint Francis of Assisi**

Saint Francis of Assisi, the Patron Saint of Ecology, is “the example par excellence of care for the vulnerable and of an integral ecology lived out joyfully and authentically” (Francis, 2015a, §10). Saint Francis is remembered for demonstrating Christian love and care for all human and nonhuman members of the Earth community. The title of *Laudato Si*’ is a quote from Saint Francis’s 13th century poem of prayer “Canticle of the Sun,” and Pope Francis gave an indication of his priorities as Pope by
choosing to take the name of Saint Francis, “the man of poverty, the man of peace, the
man who loves and protects creation . . . with which we don’t have such a good
relationship” (quoted in Wooden, 2013, para. 3). In his first encyclical, Lumen Fidei,
Pope Francis cites Saint Francis’s loving encounter with a leper, along with Mother
Theresa of Calcutta care for the poor, as supreme examples of the power of faith to be “a
lamp which guides our steps” through the sufferings of this world (Francis, 2013, §57).
Saint Francis exemplifies integral ecology by “[showing] us just how inseparable the
bond is between concern for nature, justice for the poor, commitment to society, and
interior peace” (Francis, 2015a, §10). A key takeaway from Pope Francis’s analysis of
Saint Francis’s example is that we should care for Earth not merely out of self-interest or
moral obligation, but out of loving and joyful inspiration:

Just as happens when we fall in love with someone, whenever he would gaze at
the sun, the moon or the smallest of animals, he burst into song, drawing all other
creatures into his praise. He communed with all creation, even preaching to the
flowers . . . His response to the world around him was so much more than
intellectual appreciation or economic calculus, for to him each and every creature
was a sister united to him by bonds of affection. That is why he felt called to care
for all that exists. (Francis, 2015a, §11)

In this way, Saint Francis’s example “helps us to see that an integral ecology calls for
openness to categories which transcend the language of mathematics and biology”
(Francis, 2015a, §10).
Saint Bonaventure

Saint Bonaventure, a follower of Saint Francis and early member of the Franciscan order that Saint Francis founded, is another important influence on the theology of *Laudato Si*’. Francis cites Bonaventure’s insight that Saint Francis referred to all creatures as his brothers and sisters in response to his “reflection on the primary source of all things” (Francis, 2015a, §11). Francis draws on Bonaventure’s theology to explain how all of Earth’s life reflects the Trinity of God, which Bonaventure suggested people were able to see before the fall into sin. “The Franciscan saint [Bonaventure] teaches us that each creature bears in itself a specifically Trinitarian structure, so real that it could be readily contemplated if only the human gaze were not so partial, dark and fragile” (Francis, 2015a, §239). According to Francis’ interpretation, integral ecology can help us to develop this “partial, dark and fragile” gaze into a more whole, illuminated, and firm view that allows us to see God in all creatures.

Saint Thomas Aquinas

Saint Thomas Aquinas was a contemporary of Bonaventure who is among Christianity’s most influential theologians. Pope Francis has cited Aquinas in each of his encyclicals and in many other papal documents. In *Laudato Si*’, Francis discusses Aquinas’s teachings as a way of understanding how each individual creature and every relationship forms part of “the entirety of God’s plan” (Francis, 2015a, §86), providing insight into the fundamental ecological principle of biodiversity. According to Aquinas, the Earth’s diversity of life is the greatest possible expression of God’s unfathomable goodness and love, “which could not be represented fittingly by any one creature”
(Francis, 2015a, §86). This supports Francis’s argument for recognizing the intrinsic value of all of Earth in which “each creature has its own purpose. None is superfluous. The entire material universe speaks of God’s love, his boundless affection for us. Soil, water, mountains: everything is, as it were, a caress of God” (Francis, 2015a, §86).

Saint Ignatius of Loyola

Although never mentioned in Laudato Si’, Saint Ignatius of Loyola is another early Catholic figure who undoubtedly influenced Pope Francis’s understanding of integral ecology. Ignatius founded the order of the Society of Jesus, or Jesuits, in the 16th century. As a Jesuit himself, Pope Francis’s spiritual formation was profoundly influenced by Ignatius’s Spiritual Exercises (Ignatius of Loyola & Ganss, 1991), a guide to experiencing God’s peace and love through prayer, meditation, and reflection on scripture. The social vision of integral ecology is surely inspired by Ignatius’s emphasis on the spiritual worth of every individual. The Spiritual Exercises also teach discernment as a self-reflective approach to making changes to our lives, which is appropriate to the ecological task before us and to the approach of integral ecology. The Ignatian approach is significant to the practice of integral ecology education, as Healing Earth was developed by Jesuit-affiliated educators and much of its use is in Jesuit educational institutions.

20th and 21st Century Christianity

Pope Francis is one of many recent and contemporary public figures in Christianity who have demonstrated leadership on ecological issues. Here I discuss a few prominent Christian figures of the twentieth and twenty-first centuries who have
significantly influenced ecotheological discourse generally and Pope Francis’s conception of integral ecology specifically.

**Thomas Berry**

Thomas Berry is often credited as the founder of integral ecology in the Catholic tradition. Surprisingly, Berry is not mentioned directly in *Laudato Si’*, but he is featured prominently in *Healing Earth* (IJEP, 2020e). Berry was ordained as a priest in the Passionist order in 1942, and he wrote prolifically about spiritual and ecological issues from the 1950s through the 2010s. At a time when few understood the dangers of ecological collapse, Berry described and analyzed the ecological crisis with prophetic clarity, “[knowing] that humanity as a whole faced its ultimate crisis” (Cobb, 2011, p. x). As O’Hara (1999) notes, Berry identified two fundamental human delusions at the heart of the ecological crisis. First is the problem of humans’ “alienation from the natural world” (Berry, 1997, p. 5), or the mistaken belief that we are separate from, rather than part of, Earth. The second problem is humans’ “absence of a sense of the sacred” (Berry, 2003, p. 18). Berry’s great hope was that humankind would emerge from the Cenozoic era, which has encompassed all human existence to the present, into a time of greater spiritual and ecological harmony, which Berry termed the Ecozoic era. For this transformation to occur, Berry believed we must gain a new understanding of “the integral, cosmological story” (Berry, 2011a, p. 7), and he believed that education must play a critical role in this transformation. Berry (2011b) envisioned a future in which education would “be defined as knowing the story of the universe, of the planet Earth, of
life and consciousness, all as a single story” (p. 14). Scharper (1997) summarizes Berry’s conceptualization of an integral ecology curriculum:

Economists, under [Berry’s] curriculum, would look at the “gross earth product” rather than the gross national product; colleges would teach the story of the universe’s unfolding rather than just the saga of Western civilization; lawyers would develop legislation for a “biocracy” rather than a democracy; and so forth. (p. 116)

Berry understood that the ecological crisis threatens the very survival of the human species, but he saw ecological degradation as a spiritual threat as well as an existential one. Berry wrote that “the universe itself can be understood as the primary revelation of the divine” (2011a, p. 31). Berry (1999) further explains, “Intimacy with the planet in its wonder and beauty and the full depth of its meaning is what enables an integral human relationship with the planet to function” (p. xi). We learn about God through our experience of the natural world. Therefore, in diminishing Earth’s beauty we diminish our spiritual potential: “if a resplendent world gives us an exalted idea of God, a degraded world gives us a degraded idea of God” (Berry, 2011a, p. 32).

Thomas Merton

Another essential figure in Catholic ecotheology is Thomas Merton, one of the most widely read spiritual authors of the twentieth century (Dekar, 2012) who “remains a source of spiritual inspiration and a guide for many people” (Francis, 2015b, para. 23). Merton was a Trappist monk with a “prophetic voice on the perennial issues of violence, racism, commodity culture, ignorance, and psychic disorientation . . . that has changed
the discourse and orientation of modern spirituality” (Deignan, 2003, p. 22). Merton is not primarily remembered for his ecological insights, but as Thomas Berry (2003) noted, Merton’s ecological awareness emerges as “an all-pervasive concern throughout his work” (p. 16). Merton (1955) emphasized the importance of “[seeing] the value and the beauty in ordinary things, [coming] alive to the splendor that is all around us in the creatures of God” (p. 33). Consistent with the integral ecology perspective, Merton believed that this spiritual context could serve to broaden the limitations of the scientific approach:

Man can know all about God’s creation by examining its phenomena, by dissecting and experimenting and this is all good. But it is misleading . . . There is something you cannot know about a wren by cutting it up in a laboratory and which you can only know if it remains fully and completely a wren, itself, and hops on your shoulder if it feels like it. (Merton, 2003, p. 44)

Merton also expressed profound insight into the impending ecological crisis. In a 1963 letter to Rachel Carson, whose book Silent Spring (1962) is widely credited with sparking the modern environmental movement (Lytle, 2007), Merton (1995) identified “a consistent pattern running through everything that we do, through every aspect of our culture, our thought, our economy, our whole way of life,” in which “the very thought processes of materialistic affluence” result in “indiscriminate, irresponsible destructiveness, hatred of life” (pp. 70-71).
Catholic Church Leadership

The ecological insights of both Berry and Merton reverberate in Pope Francis’s encyclical *Laudato Si’* (2015a), but Pope Francis is not the first pope to send strong pro-ecological messages. Pope Benedict XVI, Francis’ predecessor who has been called “The Green Pope” (Kosloski, 2019), had an evident influence on Francis’ ecological views. In an early address to the general audience (Francis, 2013a) that prefigured the themes of *Laudato Si’*, Francis cited Benedict’s teachings that “God the Creator requires us to grasp the pace and the logic of creation” (para. 3) to support Francis’ own call for greater responsibility in caring for Earth. Benedict delivered his strongest ecological message on World Peace Day in 2009, for which he chose the theme *If You Want to Cultivate Peace, Protect Creation* (Benedict, 2010). Benedict’s message was inspired by his predecessor, Pope John Paul II, who delivered his most powerful call for ecological responsibility in a previous address for World Peace Day, declaring “a lack of *due respect for nature*” and “the plundering of natural resources” as threats to world peace (John Paul II, 1990a).

Eastern Orthodox Church Leadership

Ecumenical Patriarch Bartholomew I of Constantinople, the spiritual leader of the Eastern Orthodox Church for the past three decades, has been called “The Green Patriarch” for his consistent record of pro-ecological advocacy (Chryssavgis, 2007). One of Bartholomew’s many notable ecological messages was the *Common Declaration on Environmental Ethics*, which he released in partnership with Pope John Paul II (John Paul II & Bartholomew, 2002). This statement is significant for the force and clarity of its message and for the union of the world’s two largest Christian churches in delivering it.
John Paul and Bartholomew declare that God created for us “a world of beauty and harmony . . . making every part an expression of His freedom, wisdom and love” (para. 2) but that we have failed to fulfill our responsibility for stewardship:

If we examine carefully the social and environmental crisis which the world community is facing, we must conclude that we are still betraying the mandate God has given us: to be stewards called to collaborate with God in watching over creation in holiness and wisdom. (para. 4)

Consistent with the integral ecological analysis Pope Francis would advance with *Laudato Si’* (2015a), John Paul and Bartholomew explicitly connect ecological stewardship to human rights:

Respect for creation stems from respect for human life and dignity. It is on the basis of our recognition that the world is created by God that we can discern an objective moral order within which to articulate a code of environmental ethics. In this perspective, Christians and all other believers have a specific role to play in proclaiming moral values and in educating people in *ecological awareness*, which is none other than responsibility towards self, towards others, towards creation.

(John Paul II & Bartholomew, 2002, para. 6)

Bartholomew has maintained and expanded his partnership with the Catholic Church during Francis’ papacy. Francis and Bartholomew issued a joint declaration in which they asserted, “Our human dignity and welfare are deeply connected to our care for the whole of creation” (Francis & Bartholomew, 2017, para. 1). This declaration called upon “all people of goodwill to dedicate a time of prayer for the environment” and “to offer thanks
to the loving Creator for the noble gift of creation and to pledge commitment to its care and preservation for the sake of future generations” (Francis & Bartholomew, 2017, para. 4).

Protestant Leadership

There are numerous examples of pro-ecological leadership among the many branches of protestant Christianity, of which I will mention just a few here. Under the leadership of Archbishop of Canterbury Rowan Williams, the Church of England launched a national program seeking to reduce England’s carbon emissions, along with several other smaller-scale ecological initiatives throughout the country (Curry, 2018). Sally Bingham, an American Episcopal Priest, has been a leader in interfaith political advocacy for ecological responsibility through the Power and Light campaign and the Regeneration Project (Leland & Ruta, 2021). Archbishop Emeritus Desmond Tutu of the Anglican Church provided a clear ethical analysis of our ecological responsibilities, declaring that "We must act now and wake up to our moral obligations. Ignoring global warming is a sin, and the future of our beautiful planet is in our hands" (quoted in Carnie, 2007, para. 3). Even among the more conservative-leaning American Evangelical branch of Christianity there are significant examples of pro-ecological leadership, such as Richard Cizik (Little, 2005) and Joel Hunter (Roberts, 2006).

Christianity in Practice

Countless Christians are working to heal Earth today. In the three subsections above I only discuss individuals with highly influential positions or public profiles. However, some of the most powerful examples of pro-ecological Christian leadership
today are less public-facing, including inspiring work happening in Black churches in the US (e.g., Bonacich & Alimahomed-Wilson, 2011; Frykholm & Brown, 2020) and the movement of green sisters I discuss above.

**Influences of Other Faith Traditions**

The focus of this section has been on ecotheology in the Catholic tradition, but ecology has a meaningful place in all faith traditions. Integral ecology invites the idea that all religions are interconnected. Thomas Berry (1996), for his part, believed we must overcome the barriers that falsely separate the various religions from one another: “the multiple spiritual and humanist traditions implicate each other, complete each other and evoke from each other higher developments of which each is capable. . . for each has a universal mission to humankind” (p. 194). Berry (2011a) would later expand on this idea as part of his vision for a better future:

> All human traditions are dimensions of each other. If, as Christians, we assert the Christian dimension of the entire world, we must not refuse to be a dimension of the Hindu world, of the Buddhist world, of the Islamic world. Upon this intercommunion on a planetary scale depends the future development of the human community. This is the creative task of our times, to foster the global meeting of the nations and of the world’s spiritual traditions. . . . These human traditions are much larger and infinitely more resplendent than the limited Western past. (p. 5)

While we have not yet achieved Berry’s dream of religious intercommunion, it is important to recognize the ways different religions have enriched one another. A notable
example of interfaith alliance in response to the ecological crisis is the Earth Charter, “a declaration of fundamental principles for building a just, sustainable, and peaceful global society in the 21st century” (Earth Charter International, 2000, para. 1). The Earth Charter has been signed on by many organizations representing various religions throughout the world. Pope Francis (2015a) echoes the Earth Charter’s “courageous challenge” to “leave behind a period of self-destruction and make a new start” (§207).

The Old Testament stories I cite above in Ecotheology and Scripture, such as the creation stories, the great flood, and the book of Job, are of Jewish origin, and there is a great tradition of ecological Jewish thought. My discussions above of ecotheological readings of these stories are equally applicable to Jewish theology as to Christian theology, and many contemporary Jewish scholars (e.g., Gerstenfeld, 1999; Gottlieb, 2003; Tirosh-Samuelson, 2002) offer interpretations of Hebrew scriptures with profound insights for our present ecological moment. Ecological themes have also had a significant place in the writings of past influential Jewish thinkers such as Martin Buber, Joseph Ber Soloveitchik, Abraham Isaac Kook, and Abraham Joshua Heschel (Meir, 2021).

In Laudato Si’, Pope Francis cites the Sufi Muslim mystical writer Ali al-Khawas as an influence on his conception of integral ecology. Francis (2015a) connects the teachings of al-Khawas to those of Saint Bonaventure, both of whom challenge us “to discover God in all things” (§233): “There is a subtle mystery in each of the movements and sounds of this world. . . when the wind blows, the trees sway, water flows, flies buzz, doors creak, birds sing, or in the sound of strings or flutes, the sighs of the sick, the groans of the afflicted” (quoted in Francis, 2015a, endnote 159).
Pope Francis (2015a) calls for “special care for indigenous communities and their cultural traditions (§146) and acknowledges that indigenous spiritual traditions can teach us a great deal about how to care for Earth: “They are able to instil a greater sense of responsibility, a strong sense of community, a readiness to protect others, a spirit of creativity and a deep love for the land. They are also concerned about what they will eventually leave to their children and grandchildren. These values are deeply rooted in indigenous peoples” (§179). Thomas Berry (1988) expressed similar appreciation of indigenous religions, once writing that the wisdom of American Indian spiritual traditions represents “our hope for the future . . . The fate of the [North American] continent, the fate of the Indian, and our own fate are finally identical” (p. 193).

Eastern spiritual traditions were foundational to the spiritual formations of both Thomas Berry and Thomas Merton. Merton frequently drew upon teachings of Buddhism, Taoism, Confucianism, and Hinduism in his writing, which served as an introduction to these traditions for many of Merton’s readers. The Hindu scholar Mahanambrata Brahmachari was a key influence on Merton’s early spiritual formation (Croghan, 2018), and Merton’s books The Way of Chuang Tzu (1965) and Mystics and Zen Masters (1967) were praised by Berry (2003) for “[enabling] Christian and Asian spiritualities to be present with each other in a mutually supportive manner” (pp. 15-16). Berry, for his part, studied Sanskrit and traveled to China to explore its spiritual traditions (Tucker, Grim, & Angyal, 2019), and he went on to publish several scholarly texts focused on the theology of Eastern religions (Berry, 1956, 1961, 1996). For both Berry and Merton, Eastern spirituality informed the belief that our experience of Earth can be a
path to understanding God. Berry (1988) saw a tendency in Christianity to neglect “the sacred dimension of the earth itself…. We go too quickly from the merely physical order of things to the divine presence in things” (p. 81). This can lead to an “alienation from the revelatory presence of the divine in the surrounding universe,” which causes “the entire religious life” to become “more of an artificial construct” (Berry, 2011a, p. 32). Berry (1988) stressed the importance of “[developing] a sense of the reality and nobility of the natural world in itself” (p. 81), which can be cultivated through Eastern spiritual practices. Merton (2003) expressed a similar perspective in poetic fashion:

How necessary it is for monks to work in the fields, in the rain, in the sun, in the mud, in the clay, in the wind: these are our spiritual directors and our novice-masters. They form our contemplation. They instill us with virtue. They make us as stable as the land we live in. (p. 43)

It is evident throughout Merton’s work that the teachings of Zen Buddhism, Taoism, and Hinduism helped him to hone his capacity for contemplation of Earth.

**Related Thought Movements**

In this section I review some significant thought movements with similarities to the integral ecology framework. I provide a brief overview of each movement followed by a discussion of how each movement aligns with and departs from the principles of integral ecology, with the intent of situating the integral ecology framework among other ecological perspectives.
Leopold’s Land Ethic

Aldo Leopold, one of the most influential ecological thinkers of the twentieth century, established the idea of a land ethic as a framework for an integral understanding of ecology. In his classic book *A Sand County Almanac* (1949/1989), Leopold confessed that in his early work as a land manager, he sought to eradicate wolves based on the assumption that “because fewer wolves meant more deer, that no wolves would mean a hunters’ paradise” (p. 130). Leopold’s perspective evolved, however, and he learned to “think ecologically rather than mechanistically” (Salchak, 2003, p. 15), or in Leopold’s (1949/1989) own words, to “think like a mountain” (p. 132). Leopold came to understand predators’ vital role in maintaining the health of the ecosystem, including the health of the populations they prey upon.

The holistic and ecocentric perspectives that Leopold introduced are a clear precursor to integral ecology. Leopold is one of the “Inspired People” featured in *Healing Earth* (IJEP, 2020e), which notes Leopold’s call for humankind to change our positionality from “conqueror of the land-community” to “member and citizen of it” (Leopold, 1949/1989, p. 204). Integral ecology is distinct from Leopold’s land ethic in its analysis of the intersection of social justice and human rights with ecological issues; in its inclusion of religious traditions; and in its incorporation of current scientific understandings that were unknown in Leopold’s time.

Deep Ecology

The ideological movement of deep ecology, inspired by Leopold’s land ethic, originated in the 1970s with the writings of Arne Næss (Næss, 1973; Rosenhek, 2004).
Deep ecologists seek “a radical transformation of consciousness” (Rosenhek, 2004, p. 45) through the development of “an ‘ecological self’ that understands the sacredness and value of all life” (Taylor, 1993, p. 226). Deep ecology shares many of integral ecology’s principles including a belief in the sacredness of Earth and a corresponding rejection of anthropocentrism. However, there are some distinctions between the two perspectives. In some instances, deep ecologists have adopted a radical biocentric egalitarianism that de-emphasizes the value of human life (Duddy, 2013), in contrast to integral ecology’s commitment to social justice and human rights (Castillo, 2016). Additionally, deep ecologists have advocated for human population reduction (e.g., Sessions, 1995), while in *Laudato Si’* Pope Francis (2015a) firmly rejects calls for population reduction, asserting that “demographic growth is fully compatible with an integral and shared development” (§50).

**Wilberian Integral Theory**

There is another strand of thought known as “integral ecology” within the philosophy of *integral theory* founded by Ken Wilber (2001), which is separate from the theoretical framework of this dissertation. Wilber’s theory utilizes a framework known as *all quadrants, all levels* (AQAL) which, in its most basic iteration, “consists of four quadrants or ‘‘perspectives’’: the interior ‘I’ or Me (or individual’s interior life world) (upper left); the interior ‘Us,’ or We (lower left); the external ‘I’ (upper right); and the exterior ‘Collective’ (lower right)” (Greenway, 2010, p. 160). According to adherents of Wilberian integral theory, this framework can be adapted to encompass all phenomena in the universe. The most notable application of Wilberian theory to the field of ecology is
Esbjorn-Hargens and Zimmerman’s (2011) *Integral Ecology: Uniting Multiple Perspectives on the Natural World.* As Greenway (2010) observes, the “encyclopedic scope” (p. 159) of Esbjorn-Hargens and Zimmerman’s work makes it difficult to explain in simple terms. One overarching theme is *interiority,* which Esbjorn-Hargens and Zimmerman (2011) assert is not unique to humans but is part of the life of “animals and even plants” (p. 39). The Wilberian paradigm “privileges perspective over perception” (p. 48), emphasizing that any phenomenon can be understood in multiple ways according to different perspectives. While Wilberian integral ecology is a separate framework that happens to share the same name as the framework of Thomas Berry and *Laudato Si’,* there have been interactions between the two fields, as when Wilberian integral theorist Esbjorn-Hargens (2011) contributed a chapter to a book of commentary on Thomas Berry, in which Esbjorn-Hargens expresses admiration for Berry’s non-Wilberian conception of integral ecology.

**Environmental Justice**

*Environmental justice* refers to the ways that pollution and other environmental problems disproportionately harm the poor and racial minorities (Banzhaf, Ma, & Timmins, 2019; Schlosberg, 2007). The environmental justice movement began with grassroots efforts in the US in the early 1980s (Banzhaf, Ma, & Timmins, 2019), with roots in the US Civil Rights Movement of the 1960s (Roberts, 1998). Environmental justice now encompasses “a growing body of academic work in law, sociology, public policy, geosciences, and economics” (Banzhaf, Ma, & Timmins, 2019, p. 185).
While the principles of environmental justice are fundamental to integral ecology, integral ecology’s scope is broader. Environmental justice is a wholly *environmental* paradigm exclusively concerned with ecological problems’ effects on humans. Integral ecology, in contrast, is an *ecological* paradigm that considers the intrinsic value of all members of the Earth community, nonhuman as well as human. As Pope Francis (2015a) explains, integral ecology encompasses “concern for nature, justice for the poor, commitment to society, and interior peace” (§10).

**Educational Context**

*Healing Earth* serves as the preeminent example of integral ecology curriculum, as I discuss in the following section. To situate *Healing Earth* in a broader context, I discuss the evolution of the field of environmental education over the past two decades, provide an overview of Catholic and Jesuit education globally, and introduce the development of curriculum integration as an educational approach.

**History of Environmental Education**

The roots of contemporary environmental education trace back to the nature study movement of the late 19th century, which sought to teach students about “the wondrous resources of our patrimony [and] how to preserve it” (Funderburk, 1948, p. 2; quoted in Li, 2011, p. 283). Nature study gave rise to the outdoor education movement, a nondisciplinary subject inspired in part by the educational philosophy of John Dewey (Li, 2011) that peaked in popularity in the middle of the twentieth century. Outdoor education, like nature study, “promoted the aesthetic and spiritual values of nature in a rapidly industrialized and urbanized society” (Li, 2011, p. 283).
Environmental education in its more contemporary form emerged in 1977 with the Tbilisi Intergovernmental Conference on Environmental Education, which established the consensus that environmental studies should “consider the environment in its totality — natural and built, technological and social (economic, political, technological, cultural-historical, moral, aesthetic)” (UNESCO, 1980, p. 71, quoted in Li, 2011, p. 286). Soon after the Tbilisi Conference, the concept of sustainable development became a central component of many environmental education efforts, based on the influential belief “that the pursuit of economic growth is the key to meeting the needs of the world’s poor and eventually to solving the global ecological crisis” (Li, 2011, p. 287). While sustainable development rightly recognizes that the problems of poverty and ecological degradation are interconnected, the sustainable development field has failed to reconcile with the intrinsically unsustainable nature of perpetual economic growth (Hickel, 2020); failed to adequately hold the wealthy and powerful to account for their ecological transgressions (Winkler & Satterthwaite, 2018); and its stated goals, at any rate, are insufficient to the scale of the ecological crisis (Zeng et al., 2020).

Beginning in the 1990s, some education programs began to incorporate the concept of environmental justice, which offers a more critical analysis of the intersection of ecological damage and social injustice. The movement for place-based education, which also began in the 1990s, addresses ecological issues in the context of students’ own communities, intending to avoid the overwhelming and potentially traumatizing experience of trying to address global ecological issues that students may feel powerless to change (Gruenewald & Smith, 2008).
One promising current development in environmental education is that ecological issues are increasingly being addressed in context with other issues, rather than as a separate topic. For example, as the intersection of health and ecological crises such as climate change become more apparent, some medical schools and other health science institutions now include climate science in their curriculum (e.g., Finkel, 2019; Marill, 2020; Maxwell & Blashki, 2016).

**Catholic and Jesuit Education**

Catholic education serves as the context of this dissertation study, as all participants work in secondary- or university-level Catholic educational institutions. The Catholic education system serves more than 60 million students at the pre-primary, primary, and secondary levels (Wodon, 2020b), and another 6 million students at the post-secondary level in institutions of higher education (Wodon, 2020a). This makes Catholic education “the largest non-governmental school network in the world” (Wodon, 2020b, p. 2). There has been much attention to the recent decline in enrollment in Catholic education in the US (Schuttlofél, 2012), but overall enrollment both in Catholic schools and universities continues to increase globally (Wodon, 2020a, 2020b). Catholic education has many aims including “contribution to human wealth capital” (Wodon, 2020b, p. 4), especially in the Global South; making high-quality education more readily available to students; and enhancing communities of all faiths (Wodon, 2020b). A fundamental value of Catholic education is “integral human development” (Wodon, 2020b, p. 4), aiming not only for academic development but for education of the whole person. The aims of Catholic education are somewhat complex as they seek to promote
Catholic identity by educating students on “the Church’s theology, teaching, and Gospel values” (Schuttlofelf, 2012, p. 152) while serving diverse populations of students of various religious backgrounds and demonstrating respect for all faiths (John Paul II, 1990b; Wodon, 2020b). Increasingly, Catholic schools are also struggling to balance the commitment to spiritual education “with the encroachment of accountability, government protocols, and the general rationalization of education” (Schuttloffel, 2012, p. 152).

This dissertation study is largely situated in the context of Jesuit education, as four of my five interview participants served in Jesuit schools; Healing Earth is authored by IJEP, a Jesuit coalition; and I am conducting this dissertation study through Loyola University Chicago, a Jesuit institution. It is also worth noting that Pope Francis is the first pope in the history of the Catholic church to have been a Jesuit. The Jesuits, also known as the Society of Jesus, run hundreds of schools and over 80 universities throughout the world (International Association of Jesuit Universities, 2021). Jesuit education traces its roots to the teachings of Saint Ignatius of Loyola, who founded the Society of Jesus in the 16th century. Jesuit higher education is known for its academic rigor and for its commitment to social justice and to educating “the whole person” intellectually and professionally, psychologically, morally, and spiritually” (Kolvenbach, 2008, p. 155).

**Curriculum Integration**

Integral ecology follows a long tradition of educational movements for integrated, holistic, or transdisciplinary curriculum that reject the compartmentalization of curricular content into distinct subjects or disciplines in favor of an emphasis on unity and
connections of knowledge. Integrated approaches to education gained popularity in the late 19th century with the child-study movement and the Herbartians (Kliebard, 2004) and received growing support in the early 20th century through the work of John Dewey (Martin, 2003). The 1990s saw a revived interest in holistic education with the development of early childhood curriculum, whole language instruction, and neurological advancements in understanding the learning process (McNamara, 2008). A prominent contemporary example of transdisciplinary curriculum is the International Baccalaureate’s Primary Years Programme, which is organized around six transdisciplinary themes: who we are, where we are in place and time, how we express ourselves, how the world works, how we organize ourselves, and sharing the planet (International Baccalaureate, 2017, p. 6).

It is important to clarify that the transdisciplinary model of education need not abandon content knowledge traditionally associated with the academic disciplines (Beane, 1995). The difference is more in structure and emphasis than in content, as the transdisciplinary educator is more likely to seek cohesion between different areas of knowledge. As an example of integrated curriculum in practice, Hudson (2012) describes a unit on global exploration. In their investigation of the discoveries of historical explorers, students connect traditional social studies content (history and geography) with science as they learn about navigational equipment, which they then apply to other projects such as using a compass to map the path of the sun. Strategies for integrating math into this unit could include calculating distance, speed, and time of the journeys, and then determining the quantities of provisions that would be required.
As the value of curriculum integration becomes more accepted, there is a growing danger of distortion, dilution, and cooptation. Jardine, LaGrange, and Everest (2004), whose “interest in curriculum integration is, in part, a response to an unsettling sense of fragmentation that can be found … in much of our work with teachers, student-teachers, and schools” (p. 324) are concerned that many attempts at curriculum integration they observe are characterized by “surface skittering over topics” (p. 324). Jardine (1990) offers a superb example of a teacher education class illustrating the holistic understanding that drives this pedagogical approach. Jardine gave each teacher candidate a sheet of paper and asked them to brainstorm different ways they might use the paper in their teaching. Their ideas began with uses of the paper as a tool for learning and then progressed to using paper as a subject directing their learning. In discussing the ways they might learn about paper, the conversation entered into

. . . a giddy onrush of sun and soil and water and logging and chainsaws and gasoline and refineries. Because of this serendipitous turn of attention, suddenly and unexpectedly, everything came to be co-present with the paper, everything seemed to nestle around it. Some topics seemed close to the paper, others distant, at the ends of long and tenuous tendrils of interconnection. (p. 107)

This class soon came to understand that they could have discovered the same web of infinite connections regardless of the object or idea they had started with. This vignette demonstrates the ultimate goal of transdisciplinary curriculum: the understanding of all phenomena as interconnected and interdependent.
Healing Earth as Integral Ecology Curriculum

*Healing Earth*, freely available online and regularly updated, serves as an example of how education can incorporate *Laudato Si*’s principles of integral ecology. More than 90 authors contributed to the development of *Healing Earth*, which merges scientific, social, spiritual, and ethical analyses of pressing ecological issues. *Healing Earth* embodies *Laudato Si*’s vision from the beginning by celebrating the way “Earth's astonishing diversity, intricacy, and beauty inspires human imagination,” citing the Lascaux cave paintings, Stravinsky’s *Rite of Spring*, and “Ansel Adam’s breathtaking photographs of California’s Yosemite National Park” (IJEP, 2020e, para. 1). These examples seamlessly merge the beauties of human artistry and the natural world. We tend to think of nature and human creativity as separate sources of beauty, but integral ecology teaches us that they are not separate at all. Here I describe how *Healing Earth* exemplifies the integral ecology framework through its development of a multifaceted ethical framework and through its exploration of ecological issues from the perspectives of science, spirituality, and social systems.

**Ethical Framework**

“What is a sound ethical perspective to take as we face declining biodiversity, fossil fuel extraction, natural resource depletion, water shortages, inadequate food systems, natural resource depletion, and climate change?” (IJEP, 2020e, para. 22). *Healing Earth* provides a coherent ethical framework to guide our thinking about ecological issues, and it applies this ethical framework in every unit of the curriculum.
**Ethical Foundations**

Three claims form the foundation of *Healing Earth*’s ethical framework. First is the *intrinsic value* of nature. “This means that the natural world has value in itself, that it does not require human need or desire to give it value” (IJEP, 2020e, para. 25). The second claim is that nature also has *instrumental value.* “This means that the natural world has resources that are useful to the well-being of all creatures on Earth” (IJEP, 2020e, para. 26). While it is essential to recognize instrumental value in order to promote the well-being of all people, the authors caution against emphasizing instrumental value to the exclusion of intrinsic value:

> Many of the environmental problems we face today are the result of actions taken by people who disregard nature’s intrinsic value and see nature as only a store for satisfying human wants and needs. This view too often leads to the exploitation of Earth’s resources and the destruction of ecosystems. (IJEP, 2020e, para. 27)

The third ethical foundation, *environmental sustainability*, means that “a natural resource may be used only if it will 1) remain healthy and capable of performing its function for the ecosystem within which it exists and 2) be plentiful enough to meet the reasonable needs of future human generations” (IJEP, 2020e, para. 28).

**Ethical Norms**

In accordance with the ethical foundations, *Healing Earth* offers three sets of ethical norms to guide decision-making about ecological issues. These norms consist of principles, goals, and virtues.
Moral Principles. The first set of norms are six moral principles that “express standards that help us decide which of our actions contribute to or detract from the well-being of human beings, human societies, and the natural world” (IJEP, 2020e, para. 28). The first principle is care for creation, which means that we have an obligation “to care for the Earth in a way that preserves and protects the integrity of the natural world while making its fruits available for the legitimate needs of human beings (IJEP, 2020e, para. 31). Next, the principle of human dignity and rights, based on the belief that all people have intrinsic value, calls us to honor every person’s “right of immunity from unjust harm” (IJEP, 2020e, para. 33) and “right of access to basic goods necessary for life” (IJEP, 2020e, para. 34). The principle of common good calls us to work toward a world in which all people have a “relatively free and equal ability to achieve a fulfilled life” (IJEP, 2020e, para. 35). The moral principle of universal destination of goods declares that “basic goods such as water, food, air, land, shelter and clothing” are universal, which means that they “cannot be withheld from human beings who are in absolute need” (IJEP, 2020e, para. 36). Relatedly, the preferential option for the poor means that we should prioritize people who are in need of those basic goods in our decision-making. Finally, the principle of subsidiarity “requires community problems to be resolved at the appropriate level” (IJEP, 2020e, para. 38).

Moral Goals. The next set of norms are seven moral goals for us to work toward:

1. Protect and preserve biological diversity.
2. Support sustainable and renewable energy sources available to all people.
3. Decrease damage done to nature and people by extractive industries.
4. Conserve and protect water and its availability to all people and forms of life.
5. Make healthy food available in a sustainable way to all people.
6. Reduce human-induced global climate change.
7. Contribute to authentic, integral development. (IJEP, 2020e, para. 40)

Each of the first six goals corresponds to one unit of the Healing Earth curriculum, while the overarching seventh goal applies to all six units.

**Moral Virtues.** The final set of norms consists of six moral virtues, defined as “features of a person’s character that contribute to the well-being of humans, human societies, and the natural world” (IJEP, 2020e, para. 42):

1. Gratitude for the existence, beauty, and resources of the natural world.
2. Courage to live sustainably and advocate for the good of the natural world.
3. Justice in preserving, restoring, and distributing the goods of the natural world.
4. Prudence in decisions that affect the health of the natural world.
5. Temperance in consuming the goods of the natural world.
6. Generosity in sharing the goods of the natural world. (IJEP, 2020e, para. 43)

The authors clarify that “practice and commitment” are required to develop these virtues while “using moral principles as a compass” to “[pursue] moral goals” (IJEP, 2020e, para. 42).

**Curriculum Content**

The Healing Earth curriculum is organized into six thematic interdisciplinary units, each of which addresses a major component of the ecological crisis that is having a
direct impact on human life today. These themes are *Biodiversity, Natural Resources, Energy, Water, Food,* and *Global Climate Change.*

**Case Studies**

Each unit of *Healing Earth* begins with a case study exploring how the theme manifests among interconnected inhabitants of a particular part of Earth. In Chapter 1 I describe the case study set in Mongolia, where the lifestyles of nomadic herders have been disrupted by climate change. As another example, the unit on *Water Quality and Availability* (IJEP, 2020i) presents a multifaceted case study on the River Ganges. This case study introduces a woman named Mallika and describes various ways that her family interacts with and depends on the Ganges River in their daily lives. This is followed by an analysis of the ecological impact of these practices on a large scale, and on the consequent health impacts of the Ganges’ pollution on the people who depend upon it as a water source. The case study further explains how climate change is reducing the Ganges’ water level, which increases its concentration of pollutants. An analysis of the Indian government’s diversion and damming of the river reveals further ecological and political complexities as these projects alter the Ganges’ salinity levels; disrupt biodiversity, including a reduction of fish populations that are an essential food source; and decreasing the flow of water to neighboring Bangladesh, leading to political conflict as well as increased human suffering. The case study then explores how spiritual traditions intersect with these issues, explaining the Ganges’ significance in Hindu mythology and the ways Hindu beliefs and practices impact the river today. In some ways, religious practices contribute to ecological problems; for example, human remains,
cremated and not, are a significant source of contamination for the Ganges. At the same time, the Hindu faith inspires love of the Ganges and motivates people to take action to protect it, as evidenced by a grassroots Clean the Ganga campaign. As with every unit, the case study concludes with a series of questions prompting learners to explore ecological, spiritual, and moral dimensions of the case.

**Science**

*Healing Earth* is intended, first and foremost, to serve as “an environmental science e-textbook” (IJEP, 2020e, para. 4). Each unit offers tools for extensively exploring various scientific dimensions of its theme. The *Biodiversity* unit (IJEP, 2020a), for example, includes photographs, maps, charts, and other graphic representations of information such the way evolution by natural selection generates biodiversity, the ecological function of biodiversity, the distribution of biodiversity across Earth regions, and major causes of biodiversity loss. The *Food* unit (IJEP, 2020c) similarly uses a variety of formats to teach relevant science content such as food webs, soil chemistry, photosynthesis and biogeochemical cycles, and historical and modern agricultural practices and their ecological impacts. Every unit contains multiple links to supplemental online resources where learners can further explore these science topics.

**Spirituality**

Every unit also discusses the spiritual implications of the ecological issue, including diverse perspectives from various religious and cultural traditions. As an example, the unit on Energy (IJEP, 2020b) explores the significance of the concepts of power and energy from various spiritual perspectives. This discussion touches on
Indigenous beliefs in the spiritual energy of flowing water; Christian perspectives on energy sources as created by God; the symbolic importance of light and dark in Taoist, Jewish, and Christian traditions; and the significance of the sun in Hindu, Iroquois, Sioux, Ancient Egyptian, and Ancient Greek spiritualities. In line with Jesuit education’s emphasis on reflection, open-ended questions challenge learners to apply these concepts to their own experiences and determine their own views on timeless spiritual and philosophical questions.

**Taking Action**

*Healing Earth* aims to inspire learners to “take action for the good of the Earth” (IJEP, 2020e, para. 51). The authors prescribe a four-step method to taking action:

1. See a problem that you want to address.
2. Study the scientific and social aspects of the problem (the 5 w's).
3. Imagine possible action responses that are ethically coherent and spiritually genuine.
4. Select one of these action responses, perform the action and monitor results.

(IJEP, 2020e, para. 54)

Every unit includes a section exploring how we can “use our scientific, ethical, and spiritual knowledge to act in ways that heal the planet” (IJEP, 2020f, para. 1). For example, the unit on *Natural Resources* provides Regional Reports highlighting problems and solution efforts throughout the world, with embedded links to resources about initiatives related to natural resource conservation. The Taking Action section then provides Action Ideas including ways to support the *Yes to Life, No to Mining*
organization’s efforts to track mining projects throughout the world, as well as links to combat deforestation, prevent soil erosion, and avoid contributing to overfishing.
CHAPTER III

RESEARCH METHODS

In this chapter I explain my research design and methods. I begin by stating my research questions. Next, I explain the design of my research, which is a qualitative multiple intrinsic case study, and offer my rationale for using this design. I describe my participant sample, explaining the criteria and methods for recruiting and selecting participants. Next, I describe the methods of the survey that served as a preliminary data source. I then explain my methods of data collection and analysis for in-depth interviews, which are the principal source of data for this study. The chapter concludes with an analysis of the strengths and limitations of my research plan.

Research Questions

This research study is designed to explore two overarching questions, the first of which has four sub questions. I developed these research questions to guide my inquiry but not to limit its scope, as I take an exploratory approach with openness to unanticipated ideas and insights from participants.

- How do secondary- and university-level educators describe their experiences teaching with Healing Earth?
  - In what ways do these educators use Healing Earth curriculum resources?
  - How have these educators incorporated the principles of integral ecology when teaching with Healing Earth, including the understanding that all
life and systems on Earth are interconnected; belief in the intrinsic value of nature; and integrating spirituality, ethics, humanities, politics, and social sciences, into ecological understandings?

○ What opportunities and barriers have these educators encountered when teaching with Healing Earth?

○ In these educators’ accounts, how do students respond to the Healing Earth curriculum? What questions do students raise? What topics or actions are students most interested in pursuing?

● What lessons have these educators drawn from teaching with Healing Earth?

What ideas and vision do they share for future directions in education?

**Rationale for Research Design**

This dissertation research applies a sequential design for a qualitative multiple intrinsic case study. The first stage of data collection was a survey. I then conducted in-depth interviews generating detailed accounts and interpretations of teachers’ experiences with integral ecology curriculum. This section explains the characteristics of this design and my rationale for choosing this approach.

**Qualitative Multiple Intrinsic Case Study**

Case studies are widely discussed and among the most common forms of qualitative research. While much attention has been given to the question of how to define the *case* in case studies, the growing consensus seems to be that “the case can be virtually anything” (Robson & McCartan, 2016, p.152). Yin (2009) observes that often in case studies, “the boundaries between phenomenon and context are not clearly evident”
(p. 19), and Gillham (2000) similarly notes that a defining characteristic of case studies is that the case “merges in with its context so that precise boundaries are difficult to draw” (p. 1). These descriptions apply very much to my multiple-case dissertation study. The cases I am studying are various educators’ experiences of teaching with the *Healing Earth* curriculum. The interplay between my cases and their surrounding contexts is important, as one of my goals is to gain understanding of how my participants’ institutional contexts influenced their teaching decisions and experiences.

My dissertation study fits Stake’s (2005) description of *intrinsic* case study, in which the cases have inherent interest, because examples of integral ecology teaching have rarely been studied and are likely to generate valuable discussion. I am using a *multiple-case* design (similar to what Stake [2005] calls a *collective* case study) because I examine several cases of educators teaching with *Healing Earth*. As Rozsahegyi (2019) explains, case studies’ subject of inquiry is greater than the specific cases being explored: “The single or multiple units which are chosen provide an investigative platform” for exploring a broader issue (p. 126). This applies to my study, as my ultimate interest is not so much in the participants’ individual cases, but in what these cases suggest about the possibilities of integral ecology curriculum more broadly.

A fundamental question for qualitative researchers is “how do people make sense of their experience?” (Merriam, 2002, p. 5). In exploring how educators make sense of their experiences teaching with *Healing Earth*, my epistemological perspective is influenced by phenomenology. In-depth exploration of educators’ teaching experiences allows for inquiry into the challenges and possibilities of integral ecology education. The
ideas of integral ecology have received little attention in education research up to now, and the contributions of qualitative case studies are valuable “especially in situations where our knowledge is shallow, fragmentary, incomplete or nonexistent” (Punch, 2014, p. 124). A qualitative multiple-case study allows for an inductive approach (Merriam, 2002) that may generate new ideas or point to future directions for education research, policy, and practice.

**Sequential Design**

This study has a sequential research design with two phases of data collection. I first completed a survey, which provided preliminary data about my participants, their teaching contexts, and the ways they have used *Healing Earth*. The survey data informed my plans for the main source of data, in-depth interviews. According to Rozsahegyi (2019), “case-study research can be particularly enhanced by the use of mixed or combined methods of data gathering, involving questionnaires, interviews, observations or other methods” (p. 126). I believe that my study benefits from the inclusion of survey data in addition to interview data, even though the survey data is limited in comparison to the rich interview data. Here I describe the defining features of survey research and interview research and offer my rationale for using each of these methods of data collection in this study.

**Survey Research**

Survey research takes on many forms and serves many purposes in both quantitative and qualitative research (Bartram, 2019). Surveys are often used in studies with large samples of participants, because they serve as an efficient method of collecting
large amounts of data. The corresponding drawbacks are that surveys conducted on a wide scale often have a low return rate, which diminishes their validity, and they typically provide relatively shallow, “surface level” data (Bartram, 2019, p. 2). However, surveys can serve other purposes as well. As Cohen, Manion, and Morrison (2018) explain, questionnaires serve as a useful tool for initial data collection in preparation for collecting more detailed and descriptive data through interviews. This is consistent with the role of the survey in my research design. I invited only a small participant sample to participate in the survey but had an excellent response rate, with 12 of 14 participants completing the questionnaire. Survey responses provided key information that helped me prepare for the interview phase.

The survey gave me an initial understanding of participants’ contexts and experiences teaching with *Healing Earth*. Crucially, I learned that there is a wide spectrum of ways participants have used *Healing Earth*. Only three of the respondents have taught a course in which *Healing Earth* was the primary source of curriculum, while *Healing Earth* more often served as a supplemental resource in combination with other curriculum resources. At the same time, the responses indicated that participants all had made significant attempts to implement the principles of integral ecology in their teaching. For example, most respondents reported that they have made significant attempts to connect ecology with spiritual, political, and ethical issues, and with other subjects across the curriculum; to provide opportunities for students to take action in connection to ecological issues; to instill the belief that nature has intrinsic value; and to help students to see themselves as part of nature. (See Chapter 4 for a detailed account of
the survey findings.) These findings led me to reflect upon and clarify my focus and aims for this dissertation study. While I have a strong interest in Healing Earth as curriculum, my true aim for this project is to explore integral ecology as a curriculum framework. I adjusted my plans for the interviews accordingly: in addition to inquiring about participants’ experiences teaching with Healing Earth, I asked them to share other experiences related to the principles of integral ecology in education, even if those experiences did not relate directly to Healing Earth. The modification of my approach in response to my initial data analysis is consistent with the characteristics of emergent research design and inductive theorizing (Gillham, 2000).

**Interview Research**

My dissertation study follows the same sequential design as a study described by Winwood (2019), in which questionnaires are first used to gather initial data and are followed by in-depth interviews. The in-depth interviews “allowed findings to be reached which were in-depth, which revealed personal experiences as well as professional understandings” (Winwood, 2019, p. 12). Interviews are a commonly used and highly effective method of data collection “when detailed information is required from a small number of participants” (Winwood, 2019, p. 12). According to Gillham (2000), well conducted interviews “can be the richest single source of data” (p. 65).

I conducted in-depth interviews (Gillham, 2000), also called semi-structured interviews (Cook, 2008). There is a continuum of interview types ranging from structured interviews, which consist of a pre-planned set of fixed questions, to open-ended or unstructured interviews, in which the content of the answers is left mostly to the
interviewee’s discretion with little direction provided by the interviewer. In-depth interviews fall in the middle of this spectrum and involve a combination of methods from both structured and unstructured interviews (Firmin, 2008). I decided to use in-depth interviews because they allowed me to “[retain] some control over the direction and content to be discussed,” while at the same time allowing participants “to elaborate or take the interview in new but related directions” (Cook, 2008, p. 423). This method allowed me to incorporate the most advantageous aspects of both structured and open-ended interviews. A structured approach would be too rigid, potentially precluding participants from contributing worthwhile ideas not anticipated in my questions. An unstructured approach, meanwhile, could be insufficiently focused on topics of interest to my study. The in-depth, semi-structured approach allowed me to guide the conversation in productive directions while following participants’ leads and probing any interesting ideas that arose.

Several limitations are inherent to the interview method (Yin, 2009). There is no guarantee that participants’ accounts will be reliable; they might not remember the events accurately, or they might alter their accounts in some way (Gillham, 2000). Also, my own biases as an interviewer likely influenced participants’ accounts to some degree. I have no way of verifying these accounts, but I trust that there are generally truthful and found significant value in the experiences and ideas they shared. The second interview provided participants the opportunity to clarify, correct, or supplement the accounts they had provided during the first interview. (See the Interview Procedures and Data Analysis section below for more details.)


Participants

In this section I detail my methods of recruiting and selecting participants for the survey and interviews. I also provide some information about the participants and their teaching contexts.

Survey Participants

For the initial survey, I identified all educators I could find who have taught with Healing Earth. I found some of these educators’ names on the Healing Earth website, and I then found their email addresses on their institutions’ websites. Members of the Healing Earth team provided me with names and email addresses of additional educators they knew to have taught with Healing Earth. In total, I obtained the names and email addresses of 14 educators who had taught with Healing Earth. After receiving IRB approval to conduct the survey, I contacted the 14 participants through email and sent them links to the online questionnaire on Qualtrics. Twelve of those 14 participants completed the questionnaire.

Of the 12 participants who completed the survey, eight participants (67%) teach at the secondary level and four participants (33%) teach at the university level. All respondents teach in Catholic institutions, nine of which (75%) are Jesuit institutions. Six participants (50%) live and work in the US, and six participants (50%) live and work in countries other than the US. Of the six participants who live outside the US, three participants (25%) live in Indonesia, two participants (~17%) live in Spain, and one participant (~8%) lives in Poland.
The final question on the questionnaire asked participants whether they were interested in participating in in-depth interviews at a later time. Ten of the 12 respondents provided their email addresses indicating interest in participating in interviews.

**Interview Participant Selection**

I used the survey as my initial tool for recruiting interview participants, as described above. Ten participants from the survey group provided their email addresses in the questionnaire to indicate that they are interested in participating in the interview phase. I selected seven of these ten participants to invite to participate in interviews. The primary criterion I used to select participants was how much and in what ways they have used *Healing Earth* according to survey responses. Three participants indicated that they have taught courses based entirely on *Healing Earth*, four participants indicated that they have used *Healing Earth* “as a major curriculum resource,” and three participants indicated that they have only used *Healing Earth* as “an occasional supplement” or as “a source of ideas or inspiration for curriculum. I invited the seven participants who reported teaching a full course based on *Healing Earth* or using *Healing Earth* “as a major curriculum resource,” and I eliminated the three participants who had used *Healing Earth* only as “an occasional supplement.” Those seven candidates included four secondary-level and three university-level educators, four of whom live in the US and three of whom live in non-US countries. After my dissertation proposal and my IRB application to conduct interviews were approved, I emailed those seven participants, and five of them responded to my emails and agreed to participate. The five final interview participants included two secondary-level and three university-level educators, three of whom live in
the US and two of whom live in non-US countries. The two non-US-based participants are colleagues who teach together at the same university in Indonesia.

**Initial Survey**

I conducted a survey using an online questionnaire as the initial phase of data collection for this dissertation study. The survey provided initial data about my participants’ contexts and the ways they have used *Healing Earth* in their teaching. In this section, I describe the methods I used and the findings of this survey.

**Survey Procedures**

After obtaining IRB approval to conduct the survey, I emailed each of the 14 participants to commence this initial phase of my study. The email contained a link to the questionnaire (see Appendix A) on the secure online platform Qualtrics. My email to participants and the online questionnaire both contained statements informing participants that the survey is voluntary and anonymous, that no identifying information was being collected beyond what the participants chose to include in their answers, and that participants had the option to skip any questions they did not wish to answer.

The IRB granted me a waiver of documented consent for the survey because it was not practical to collect a signed form for the anonymous online survey, and because participation in the survey entailed no foreseeable risks beyond those experienced in everyday life. However, the survey began with an Informed Consent statement. All participants who completed the survey clicked on the statement “I consent, begin the study” before proceeding with the questionnaire.
The final question of the survey asked participants if they wished to participate in a follow-up interview. If interested, they were asked to provide their email address so that I could contact them later to provide more information and to arrange the interview if they still wished to participate. Ten of the twelve survey respondents provided their email addresses to indicate that they are interested in participating in interviews.

**Questionnaire**

I took several factors into account when crafting my questionnaire (see Appendix A). Most importantly, I needed the survey to be thorough and clear in order to effectively gather the information I was seeking. At the same time, I wanted to minimize the time and effort required for participants to complete the questionnaire in order to maximize the response rate. I also tried to make the survey pleasant and interesting for the participants, because the survey served as a way of recruiting participants for the in-depth interviews in the next phase of my research. The survey was a success by each of these measures. I gained useful information that helped to inform my planning for interviews and contributed to my overall findings. I achieved an excellent response rate. Of the 14 educators I invited to participate in the survey, twelve participants (~86%) completed the survey. Of those twelve participants who completed the survey, ten participants shared their email addresses to indicate interest in participating in interviews later. I attribute this high response rate to the fact that I personally emailed each participant, and to the fact that this study explores an uncommon topic that has specific relevance to the participants’ work and interests.
Following the advice of Cohen, Manion, and Morrison (2018), the questionnaire begins with straightforward, categorical questions, and builds up to questions that require a thought. The questionnaire took an estimated time of 15 minutes to complete. I used a variety of question types including multiple-choice, scaled, and open-ended responses. This goes against the advice of Bartram (2019), who cautions that varied question styles present challenges for analysis and “run the risk of deterring respondents by producing a confusing mixture of formats” (p. 2). I decided that the benefits outweighed the drawbacks in formatting each question in my preferred way.

The full questionnaire is included as Appendix A. The results of the survey are presented in Chapter 4.

**Interview Procedures and Data Analysis**

The primary data source for this dissertation study consists of in-depth interviews conducted with educators who have taught with Healing Earth. In this section I describe the procedures I used in conducting these interviews and the approach I used to analyze interview data.

**Interview Procedures**

I conducted two in-depth interviews with each participant via the online platform Zoom. First interviews lasted 60 to 75 minutes each, and second interviews lasted 30 to 45 minutes each. I took some notes by hand during the interviews while audio-recording the interviews to transcribe later.

After each participant agreed to participate in the interviews, I sent them an email with an overview of the topics I would ask them about and inviting them to email me
questions in advance. I also asked the participants to bring to the interview an artifact that is meaningful to them. The sharing of artifacts helped me to learn about the participants and to build report for the interviews. (I requested participants’ consent to include a photograph of the artifact in my dissertation report, blurring out any part of the photograph that could be used to identify the participant.) My email to the participants also included a photograph of an artifact that is important to me with an explanation of what this artifact means to me, with the intention of helping participants feel comfortable with me and to model a way of discussing an artifact.

The first interview served as the primary source of data. At the start of each interview, I read the statement of informed consent (see Appendix C), asked the participants to decide what pseudonym they would like to be called by, and asked them what charity they would like me to donate to (unless they had already provided this information by email). I then asked the participants to share and explain their artifact. I proceeded to ask about the participant’s positionality, background, and teaching context. The rest of the interview focused on the participant’s experiences and observations teaching with Healing Earth. After completing the first interview, I transcribed the interview and drafted a vignette, which served as initial analysis of the data, before conducting the second interview.

The second interview focused on interpreting the meaning and implications of the teaching experiences the participant previously described. During this interview, I shared

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3 The second interview here serves a similar function to “Interview Three: Reflection on the Meaning” (p. 18) in Seidman’s (2006) recommended structure for phenomenological interviews.
my preliminary analysis of the data from the previous interview. The participant had the opportunity to confirm, correct, clarify, or contribute to my understanding of their responses, which served to strengthen the validity of my analysis.

My set of guiding interview questions (see Appendix B) shows the topics I attempted to address in the interviews. Participants had a variety of contexts and experiences, so the content and form varied somewhat from one interview to the next. I attempted to conduct each interview in a way that flowed naturally and made the participant feel comfortable, in accordance with the in-depth or semi-structured interview technique (Cook, 2008). When participants were speaking freely, I allowed them to continue sharing what they want to say without disruption, unless they departed significantly from topics of interest to my research in which case I asked questions redirecting them to relevant topics. I also asked probing questions to seek further details and explanations related to participants’ comments.

Data Analysis

In this study I applied an exploratory approach to data collection and analysis, which is “both a special methodological approach, separate from verification or confirmation, and a pervasive personal orientation of the exploratory researcher” (Stebbins, 2008b, p. 328). Following the principles of emergent design, commonly used in qualitative research, my dissertation study involved continuous and simultaneous interpretation and analysis of my data (Merriam, 2002; Morgan, 2008). This approach “allows the researcher to make adjustments along the way, even to the point of redirecting data collection” (Merriam, 2002, p. 14). In contrast to the more positivist,
confirmatory approach (Stebbins, 2008a), my data collection and analysis was largely subjective and concerned with “the qualitative element: how people understand themselves, or their setting – what lies behind the more objective evidence. (Gillham, 2000, p. 7).

My analysis of interview data began while I conducted the interviews, which informed the questions I followed up with (Merriam, 2002). I took notes during and immediately after the interviews, identifying ideas and themes that initially stood out to me. I transcribed the first interview with each participant before conducting the second interview. The transcription process served as an opportunity to review and reflect on the content of each interview.

My second interview with each participant served as an important part of my data analysis process. In contrast to the first interviews, which focused entirely on interrogating participant’s perspectives, the second interview included more open-ended discussion between the participant and me. I told the participants about my initial interpretations of what they had told me in the first interview, and together we discussed ideas that I intended to explore further in my data analysis.

Writing the vignettes, which I present in Chapter 4, was one of the most intensive phases of my data analysis. While writing the vignettes, I read the interview transcripts multiple times while taking notes, mapping out a structure or flow for the vignette, and pulling out key quotes to include. After drafting the vignettes, I cross-checked the drafts against the transcriptions to ensure that the vignettes were accurate and inclusive of the most important information from the interviews. I also shared the vignettes with the
interview participants so they could confirm their accuracy. After I completed the writing of each vignette, I wrote summaries of each vignette, which I present at the start of Chapter 4. It was very challenging to condense the key information of each case into only about 300 words. This process also served as part of my data analysis, as it required me to dive deeply into the content of each case once again while identifying the most important points to highlight.

For my next data analysis phase, I identified and explored themes that emerged across multiple cases. Following the process recommended by Stebbins (2008a), I looked back over all the notes I had written in my work with the data up to that point, while reviewing each interview transcript and vignettes again. I referred to Healing Earth’s Introduction (IJEP, 2020e), including the ethical framework, as a guide for identifying and exploring emergent themes. After generating an initial set of themes, I read through each transcript again to see how each theme was represented in each case and to identify content that was not represented by the themes. I adjusted the themes during this process by revising the names of two themes and adding one additional theme. Once I was satisfied with my list of themes, I created a spreadsheet to serve as a simple content analysis grid (Gillham, 2000), where I compiled key content from each case related to each theme. I reflected on the significance of these findings as I drafted and revised my discussion of each theme.

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4 After my oral defense, I merged two themes into one broader theme in response to feedback from the committee.
For the final phase of data analysis, I focused on the practical implications of my findings. I used the findings to generate recommendations for the *Healing Earth* team and for education policy and practice more broadly. I also identified areas in need of future research to expand upon this study’s findings.

**Strengths and Limitations of Research Design**

My study focuses on educators’ experiences teaching with the *Healing Earth* curriculum and with the integral ecology approach more broadly. Because this is a relatively new topic for education research, I chose to use an exploratory approach, which allows me “to generate new concepts and generalizations” about my topic and provides “as much scope as possible for the discovery of new concepts and generalizations” (Stebbins, 2008a, p. 2). This research design aims to provide as much opportunity as possible for participants to share their experiences, ideas, and perspectives, by including open-ended questions in the survey; by applying an in-depth interview approach that is responsive to participants’ input; and by including a follow-up interview so that participants can correct, clarify, and add to what they said in the previous interview. The follow-up interviews add validity to my analysis, as they provide the opportunity for participants to respond to my analysis and offer their own interpretations.

My qualitative research methodology is inherently subjective. As I discuss in Chapter 1, my personal biases and positionality will inevitably influence my findings. My participants also have biases, and I have no way of verifying the reliability of the accounts they provide. The corresponding strength of this qualitative design is that it
allows for in-depth inquiry into participants’ subjective experiences, motivations, and ideas.

My participant sample is as complete as I could realistically achieve given my circumstances, as I invited all educators I knew to have used Healing Earth in their teaching to participate in the initial survey. Based on the survey results, I invited the participants with the most extensive experience teaching Healing Earth to participate in interviews. Still, there are limitations in this participant sample. I do not know how many educators have actually used Healing Earth, so I cannot know how representative this sample is and make no claim to the generalizability of these findings. My participants all teach in Catholic educational institutions, so my findings will be less applicable to non-Catholic education contexts.

This study only represents educators’ perspectives, with no representation of students’ perspectives. Student participation was simply not feasible for this study given the circumstances, but I hope that future research will build upon my findings to explore student experiences of integral ecology education.
CHAPTER IV

RESULTS

In this chapter I present the results of my study. I begin by sharing the results of the initial survey, which provide an overview of different ways Healing Earth has been used by educators across various contexts. In addition to providing preliminary data about educators’ uses of and experiences with Healing Earth, the survey served as a recruitment and selection tool, as five of the twelve survey respondents proceeded to participate in interviews. The remainder of the chapter shares the results of the in-depth interviews, which are my study’s principal data source. I share the interview results in the form of vignettes, beginning with secondary-level educators and followed by university-level educators.

Survey Results

In reporting the results of the survey, I organize the findings into four general categories. I begin by reporting on the participants’ teaching contexts. Next, I share the ways participants report having used Healing Earth in their teaching. I then share participants’ appraisals of the usefulness and applicability of Healing Earth to their teaching needs. Finally, I share participants’ responses to questions about teaching practices related to the principles of integral ecology.

Participant Contexts

All 12 participants work in Catholic educational institutions, nine (75%) of which are Jesuit institutions. Four participants (33%) teach at the university level and eight
participants (67%) teach at the secondary level, including two (~17%) secondary-level educators who teach at both the middle school and high school levels. Participants’ job titles include teacher, instructor, lecturer, tutor, faculty, and curriculum coordinator. Subjects taught include science, biology, environmental education, and geography and land planning. Positions formerly held in which participants used *Healing Earth* include science department chair and university rector or president. Six participants (50%) live in the US, three participants (25%) live in Indonesia, two participants (~17%) live in Spain, and one participant (~8%) lives in Poland.

**How Participants Have Used *Healing Earth***

All 12 participants who completed this survey have used *Healing Earth* as a resource in their teaching. Nine participants (75%) reported that they were still using *Healing Earth* at the time they completed the survey, while three participants (25%) reported that they were no longer using *Healing Earth* in their teaching. Three participants (25%) reported that they have used *Healing Earth* as “the main source of curriculum” for a course they taught. Five participants (~42%) reported using *Healing Earth* as “a major curriculum resource along with other materials.” Three participants (25%) reported use of *Healing Earth* as “an occasional supplement to” their curriculum. One survey participant (~8%) reported that they have used *Healing Earth* only “as a source of ideas or inspiration” and as an information source used by students for a project.\(^5\)

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\(^5\) The question “How have you used Healing Earth in your teaching?” allowed participants to submit multiple answers. 14 total responses were submitted for only 12 participants, because one
Three participants, all of whom teach at universities, reported that they have taught courses called “Healing Earth” that are based on the Healing Earth written curriculum. Other participants have used Healing Earth as a resource (but not as the main source of curriculum) in the following courses or subjects: Scientific Culture; Advanced Placement (AP) Environmental Science; Ignatian Service Learning (ISL) Environmental Science; Geography; Basic Scientific Approach to Food Policy; Ignatian Foundations; and Jesus & Darwin: The Intersection Between Faith and Science. These courses varied in length from three months to a full academic year. The frequency in course meeting times ranged from once per week to once per day, and meeting times ranged from 42 minutes to 120 minutes.

All sections and components of Healing Earth have been used by participants. The units that participants most frequently reported having used were the Introduction and the Biodiversity, Natural Resources, and Global Climate Change units, while the Food and Energy units, along with the Synthesis, were reported as being used less frequently. The components that participants most frequently reported having used were the Case Studies, Science, Ethics, and Spirituality components. The Action sections, Reflection questions, Explorations, and Additional Resources/Links were reported as being used less frequently. Two participants commented that they began using Healing Earth during its pilot phase when not all sections were available yet. One participant submitted three answers, indicating that they had used Healing Earth as an “occasional supplement,” as a “source of ideas,” and as “a major curriculum resource.” For the sake of analyzing the data consistently with only one response per participant per question, I used “a major curriculum resource” as this participant’s response and removed their other answers, defaulting to the response indicating the most frequency of use.
commented that “Each section in its own way was useful … so that students could approach the topic from different perspectives.” Two participants expressed specific appreciation for the case studies, with one participant clarifying that some sections seemed too advanced for their 16-year-old students, but that the case studies were a useful way of introducing topics. One participant commented “It would be nice to have a section on Population, but I do realize that that is a very difficult subject to teach in a Catholic institution.”

Later in the survey, in response to an open-ended question “Is there anything else that is important to know about your teaching of ecology or use of Healing Earth that has not been covered in this survey?” a participant noted that they were planning to soon incorporate discussion and reflection about the effects of the COVID-19 pandemic, particularly in terms of Healing Earth perspectives. It seems ironic that the wide-spread disease has actually helped heal areas of the Earth polluted by excess traffic and industrial pollution. Oil production is at an all-time low while the cost is in human lives lost to a microscopic virus beyond our control.”

**What Participants Say About Healing Earth**

In response to the question “How well does (or did) Healing Earth meet your teaching needs?” six participants (50%) reported that Healing Earth meets (or met) their needs “extremely well,” five participants (~42%) reported that Healing Earth meets (or met) their needs “moderately well,” and one participant (~8%) reported that Healing Earth meets (or met) their needs “slightly well.” No one answered “not well at all.” Participants offered several illuminating comments accompanying their responses to this
question. One participant wrote that they “use [Healing Earth] to connect science to spirituality of Jesuit faith” and to draw a “connection to caring for god's creation,” and another participant similarly commented that Healing Earth “did a great job of exploring both content areas [faith and science] in a way high school students could comprehend.” An AP Environmental Science instructor wrote that they teach Healing Earth to seniors “to prepare them for the AP exam and more importantly to prepare them for life” and commented that Healing Earth “touches virtually everything they have been learning in all their class.” A participant in Indonesia commented that they use Healing Earth’s materials as “a starting point” and develop their own case studies based in the Indonesian context. Another participant, who teaches at a university, noted that “The science components are geared at a High School level, so many university students may find the sections on science a bit below their academic level.”

Responses to the question “In what ways was Healing Earth useful and applicable to your teaching needs?” offered insight into various benefits Healing Earth has provided for teachers. For example, participants expressed appreciation that Healing Earth is “written in student friendly language with plenty of examples that target the students lived experiences;” that it serves as “a source of reliable information for me and my students, that we can use not only in class, but in our life too;” that the six unit topics “are very relevant to be used as continuous issues raised to increase the ecological awareness of our students;” and that the “Case study approach facilitated transfer of new knowledge into action research.” Two participants expressed specific appreciation for the global context Healing Earth provides. One participant commented, “I love the wonder and awe
of nature components. I also really rely on it for intrinsic vs. instrumental value of
nature.” Another participant expressed appreciation for the science content and the
engaging nature of the case studies but found Healing Earth “lacking in methods of
review.”

Several instructive comments also emerged in response to the question, “How
could Healing Earth have been more useful and applicable to your teaching needs?” The
participant based in Poland commented that Healing Earth would be easier to use if a
Polish language version were available; an Indonesian participant offered a similar
comment but noted that an Indonesian translation is in development now. A US-based
participant commented that they would like to have case studies specific to their region in
the US. Another participant remarked that they would appreciate more opportunities for
professional development and collaboration with other educators who teach with Healing
Earth. Two participants expressed that they would appreciate having testing materials
provided, but one of them acknowledged the difficulties this would present given the
wide range of academic levels for which Healing Earth is used. One of these participants
wrote later in the survey that “lab suggestions would be helpful” as well. Another
participant commented later that “It would be great to develop a more interactive format
that allows readers to participate and enter data, analysis, reflections, and actions at
university level and research.”

Later in the survey, two participants further expressed their deep appreciation of
Healing Earth. One participant wrote,
The first year that I used *Healing Earth* it made a profound difference in the way that my students interact with the content. That year I only used one or two units and I could see a huge difference in the level of discussion we engaged in and the way that my students perceived the impact of the ecological issues. The next year I dropped my textbook and completely switched my course to using *Healing Earth*.

Another participant wrote a message of thanks to the *Healing Earth* team and to one of the co-directors in particular for providing the curriculum resources and opportunities to interact with likeminded students and educators throughout the world.

**Teaching with Integral Ecology Principles**

The survey asked participants to indicate the frequency with which their teaching has attempted to incorporate eight aims and approaches that are fundamental to this study’s integral ecology framework. I determined the relative frequency of each approach by calculating the mean frequency for each approach as a numerical value (Every lesson = 5; Frequently = 4; Sometimes = 3; Rarely = 2; Never = 1). Figure 5 shows each approach by order of reported frequency.
Figure 5

*Integral Ecology Practices Reported by Survey Participants*

The eight responses have an overall mean of 3.82, which is slightly less than “frequently” and far more than “sometimes.” Even the approach reported to be used least frequently, “applying ethical analysis to ecology,” had a mean of 3.5, halfway between “sometimes” and “frequently.” Every participant reported that they have incorporated most of these approaches at least sometimes.

A participant added the comment, “Ideally I would have liked to answer every lesson for each of the above, but that never works, but all of the above need to be woven in as often as possible.” Another participant noted that they face the challenge of distinguishing between different means of *ecology* and *ecologist* in Spanish, with the
latter term having a political connotation. This same participant commented that, with their Ignatian spirituality, “spirituality is immersed in all of what I do when I am teaching science.”

**Interview Results**

This section presents the results of the interviews I conducted with each of the five interview participants. I organize these results into four vignettes, each of which summarizes the information I gathered from the interviews in narrative form. The first section focuses on the teaching of *Healing Earth* at the secondary education level, with a vignette for each of the two secondary-level educators I interviewed. The second section also contains two vignettes, with a focus on the teaching of *Healing Earth* at the university level; the final vignette combines interview data from two participants working within the same teaching context.

**Secondary-Level Educators**

Here I present vignettes profiling the two secondary-level educators I interviewed, “James” and “Marie.” Both participants have experience using *Healing Earth* as part of their science teaching in US-based Catholic high schools.

**Vignette 1: “James”**

The participant I profile first chose the pseudonym “James.” Here I present a narrative summary of the data from my two interviews with him.

**Artifact.** The artifact James brought to our interview is a prayer coin (see Figure 6), which James’s wife used to carry with her at all times. “When she passed I kept it and just carry it with me now. Just because. It’s a good thing.”
Background. James teaches science at “Jesuit Prep,” an all-boys Jesuit high school in a large US city. Jesuit education and spirituality have been deeply influential to James’s life ever since he began attending Jesuit Prep as a high school student, and throughout the 39 years there as a teacher. In university, James majored in science and intended to pursue research, but while working in a lab James realized that he had his work as a teaching assistant more fulfilling. When James stopped by his old school to ask if they knew of any openings for teachers in the area, he found his way into an interim teaching position at Jesuit Prep that became permanent and is still going nearly four decades later.

Institutional Context. Jesuit Prep has about 1,000 students from throughout the surrounding metropolitan area. Many students travel a far distance to attend Jesuit Prep, an indication of the families’ commitment to the school. Nearly all Jesuit prep students attend college after graduation. James describes the educational approach of Jesuit Prep
as “teaching about thinking first and then content second.” In line with its Jesuit mission, the school aims “to raise young men that are compassionate and concerned for others and concerned for our planet.”

**Teaching with Healing Earth.** James first became involved with the *Healing Earth* project during the early developmental stage of the curriculum. James saw a post from the *Healing Earth* team in the online journal *EcoJesuit* looking for volunteers to review chapters, and James volunteered because, in his words, “I say yes a lot.” This connection led to opportunities for James to connect with the co-directors of *Healing Earth* and with likeminded educators throughout the world, and *Healing Earth* has been fundamental to James’s teaching ever since.

James teaches three courses at Jesuit Prep: Chemistry, Environmental STEM, and AP Environmental Science. He uses *Healing Earth* materials frequently in AP Environmental Science as a supplement to the primary textbook. James rarely uses *Healing Earth* materials with Chemistry or Environmental STEM, “because the curriculum’s so packed in those classes,” but he “[brings] in ideas from it into” those classes as well:

The philosophy of it trickles through everything…. I can’t separate that from environmental science and I can’t separate it from myself. So wherever I go it’s going to go. It pops up in my chemistry class all the time as well, just because that’s where I’m at, it shows up everywhere I can get it to show up.

James initially had hoped to use *Healing Earth* as the primary textbook for AP Environmental Science, but while he feels the curriculum could be “perfect for an
introductory high school text or even an introductory college class,” James has found that “it’s not quite there in terms of everything I’ve got to get done” to prepare students for the AP exams for environmental science. Therefore, James uses the primary textbook, *Environment* (Raven et al., 2015), to thoroughly cover the AP science content, while using *Healing Earth* in various ways to guide, inform, and supplement the curriculum.

James feels generally supported and trusted by Jesuit Prep’s administration: “I’ve got the freedom to choose and teach [the curriculum] in the way I feel is correct, without a lot of micromanaging.” At the same time, James explains that “there is the underlying message that we’re a Catholic Jesuit school, so the Church teachings are first and foremost, and you kind of have to stick by those, so I’m careful.” In most cases, the school’s Jesuit identity bolsters the messages James seeks to impart to his students:

It’s all about care for creation, concern for the poor, and the just and right use of resources, so you can’t ask for a more natural fit, and given Pope Francis’s stance on everything, it’s kind of a no-brainer right now.

James finds it especially easy to justify these teachings with Pope Francis leading the Church:

If anybody would disagree, to some extent it’s like, you pull the Pope card, you know: “Pope Francis said…” And I win... So it’s not a bad deal when you’ve got that as a backstop. I’ve got the Pope card, that trumps everything, so I’m ok.

In his 39 years of teaching, there has been just one instance of opposition by Jesuit Prep leadership to an initiative related to James’s teaching:
I was on the planning board for a climate summit that [a local university] held, and we were getting speakers and I had a bunch of tickets to give away for free. But one of the speakers was Bill Nye. And because of Bill Nye’s position on birth control, we got pushback from one parent, and in turn the president at the time was like, no, you cannot give those tickets away. And it was a shame because this was an event sponsored by [the university], it was an international event sponsored by people all over the world, and I couldn’t give away free tickets to this event because of Bill Nye. So the kids were angry, I was disappointed. … But that is the only time I’ve gotten any pushback, and I was really surprised and disappointed.

More generally, James has been careful to avoid controversy when discussing issues related to human population, given the Church’s stance against contraception. James generally conducts his classes “as a discussion rather than as a lecture,” and his students “often have lots of questions and lots of opinions about” issues such as contraception. While James believes his students feel “open to sharing their thoughts and opinions even if they do disagree with the church,” James feels he needs to “tread carefully and make sure Church teachings are foremost and personal opinions don’t come out.” Instead of sharing his personal views, James is careful to limit his commentary to meaningful facts and examples during these discussions:

We’ll talk about some United Nations programs they have that do involve contraception and things like that, and teaching of various methods of birth control, so we’ll talk about how other countries and other societies may approach
that, and I’m comfortable doing that because it’s not “This is what we should be doing” or “This is why the church is wrong about this,” but these are practices that other countries and organizations are attempting.

James clarified that he makes these decisions based on his own professional judgment and not in response to any directives from school leadership: “for the most part it’s always felt here that once you were hired you were trusted to know your material, … know the context of Jesuit education, and as long as everything’s going well … it’s been OK.”

Case studies are one of the elements of Healing Earth that James uses frequently. As an example, James used the case study “Kakadu and the Mirrar” from Healing Earth’s Biodiversity unit (IJEP, 2020a) to introduce a recent AP Environmental Science unit focused on biodiversity and natural resources:

So before beginning our discussion I had the boys read the [case study], and then we talked in particular about Australia because that’s where it’s centered, the region of concern and what it offers the world in terms of resources, so the uranium that’s there that they want to mine, but the flip side of that, the biodiversity that exists in that area that would be impacted. We used that to talk about how so many of the organisms that are in Australia are native just to Australia, so you don’t get kangaroos and koalas in other parts of the world because of the way evolution has taken place there because it’s such an isolated place. And then we talked about the indigenous people that live there, and their perspective of land … their creation story and how that’s tied to everything, to the
plants, the animals, the rocks, the soil, the air, and the water, and how that impacts their view of the world and their value of the land, which is not unlike our indigenous populations... And then from there we were able to branch out into more of the science where we talked about evolution, and … the importance of biodiversity, how there’s that instrumental and intrinsic value in everything. So in that terminology out of Healing Earth, the instrumental value lies in the uranium that’s there, which also has all kinds of conversations that have to come from that eventually in terms of mining practices, the consequences of those mining practices, the leftovers of the uranium.

This led to James and his students discussing how communities in their own city have been affected by contamination of nuclear materials. To summarize, the incorporation of this case study led to conversations exploring not only key scientific concepts but also geography and world cultures; global and local issues with complex political, ethical, and ecological implications; key concepts of Healing Earth’s ethical framework; and different spiritual traditions’ perspectives on humans’ relationship with Earth.

At other times throughout the school year, James assigns his students to journal about the implications of Healing Earth’s ideas “for their lives and for our lives and for the choices we make.” He regularly emphasizes the intrinsic value of nature:

The aesthetics … the opportunities for recreation … the opportunity to just sit with nature, the spiritual aspect. … just to be able to sit with it and be a part of it and recognize the value and its importance, not because it’s going to be able to do
anything or give you anything but just because it’s there, and it’s amazing and it’s part of God’s creation.

James says *Healing Earth*’s ethical framework serves “as a backdrop to everything” he teaches. James helped the *Healing Earth* to develop posters of the ethical framework’s Moral Goals, Moral Principles, and Moral Virtues (see Appendix D), available in *Healing Earth*’s Teacher Materials site (IJEP 2020h), and each of these posters are now prominently displayed at the front of James’s classroom, along with another *Healing Earth* poster on the door. James hopes that the students see these posters “often enough that it’s got to start sticking in their mind at some point in time… I’ll take that subliminal message.” James’s exams regularly include questions about *Healing Earth*’s ethical framework. For example, he showed me questions from a recent exam that asked students to analyze Aldo Leopold’s Environmental Ethic in connection to the moral principles of *Healing Earth*’s ethical framework. The exam also asked students to analyze data involving race, economic status, and exposure to pollution “in the light of environmental justice, Moral Principles, Moral Virtues, and Moral Goals,” while another question instructed students to “Compare and contrast the frontier attitude with the attitude of the Native Americans towards the environment.” James keeps the *Healing Earth* posters on display during exams:

> It’s funny because I’ll see them looking up, and I know exactly what question they’re on then. … Trying to memorize each of those individual steps would be a challenge, but it’s more important that they keep the general philosophy in the
back of their mind, and then they have those posters as a touchstone when they need them to kind of center their thoughts and organize their thoughts.

While James thinks his students probably had not thought of nature in terms of intrinsic and instrumental value before their exposure to his classes and *Healing Earth*, he believes “they already have a pretty good feel for” those concepts. They “realize that creation is a gift, and it’s good just because it is. It doesn’t have to do anything for you. Just being there is gift enough.” James has observed the seniors are especially comfortable using the language of *Healing Earth*’s ethical framework, and he believes this is because they have had several years’ exposure to the school’s Jesuit philosophy. Having been a Jesuit Prep student who internalized and lived out these values, James is confident that *Healing Earth*’s ethical framework will get through to his students in a lasting way as well.

One of the ways James has sought to develop students’ appreciation of nature in the past is to have every student grow their own plant and be responsible for it the entire school year:

Just to have something that’s part of creation that’s not serving any other role other than that they’re its caretaker and that it has some, hopefully a plant that has some meaning to them for whatever reason, but to allow them to kind of reflect on that and see how it goes and grows throughout the year.

The students do not always express great appreciation for this activity at the start—"I mean, they’re high school boys, so it’s one of those things where it’s like, yeah, sure, we can do this”—James has found that the students usually “get over their too-cool-for-school attitude.” Students’ care for these plants is evident in “the disappointment when
the plant’s not thriving, and the desire to figure out why and what they can do for it.” He has found that students also become more attached to the plants when they have a meaningful purpose behind the plant they choose to grow. In some cases, students’ plants represent both intrinsic and instrumental value, such as one student who tried to grow a lemon tree, or others who have grown herbs—“so if you can get a good bunch of basil, you’ve cared for it but then you also have that ability to share it with your family and use that plant as well.” On a related note, James has created a meatless cookbook with his students, and has assigned students to prepare meals to share with family or friends.

It’s important to involve your family. When my kids were growing up, sitting and having dinner together was always really important. It’s not always possible because lives are crazy, someone’s always got practice or something like that, but just the ability to cook a meal and share it with your family and maybe get your family involved in the preparation and stuff too. And I have them document it with photographs. So it’s cool to see them sitting down with their family and having a meal.

James also gets his students involved in caring for plants in the school/community garden, which has provided produce for the school cafeteria as well as Jesuit Prep’s community service program that prepares meals for local agencies that serve communities in need.

Even though they sometimes act “too cool for school,” James finds his students very receptive to the ideas of *Healing Earth, Laudato Si’*, and environmental justice:
I mean, they’re seniors, they’ve had biology, chemistry, and physics, they’ve had three years of theology here plus whatever they may have had growing up in elementary school, so there’s a good background there. It’s an elective class so they pretty much know what they’re getting into. They come into the class because they’ve already got those kinds of leanings and inclination towards the environment and care for creation, and science, a lot of them are planning to be engineers, which is good because the engineering is not just building and making bigger and better things, it’s making bigger and better things in a responsible, sustainable way, and I think that’s something they gain in perspective from this class, regardless of what science they might go into or no science.

James acknowledges that environmental science can be a distressing topic to teach about during this time of ecological crisis. He chose the *Environment* textbook (Raven et al., 2015) in part because it’s less “depressing” than some, whose perspective he characterizes as “here’s this problem, there’s no real answer, sorry, deal with it.” Even though James avoids that attitude of despair, he knows that students sometimes leave his class feeling “somewhat despondent about the way things are, because we’ve messed things up big time.” Yet James is ultimately hopeful, because his students give him hope. When students ask him tough questions—"you know, how do I think this is really going to play out, you know, in terms of climate change”—he responds with honesty:

I always tell them that I’m hopeful and I have to be hopeful, I mean partly because that’s the only choice that makes life bearable, to be hopeful. And I’m hopeful mostly because of them, because they’re bright and they’re
compassionate and they’re hard-working, and I know that they and others like them are capable of getting out in the world and being seen and being heard and making a difference.

**Vignette 2: “Marie”**

The participant I profile next is a retired high school science teacher who chose the pseudonym “Marie.” This vignette summarizes the data from my two interviews with Marie.

**Artifact.** Marie is a quilter, and the artifact she brought to the interview was a quilt she had made, which was recently awarded a blue ribbon by a quilt guild (see Figure 7). Marie’s interest in quilting was sparked when she started going to estate sales and barn sales as a young woman:

Finding these beautiful pieces of artwork that were utilitarian made by ladies from the 1800s 1900s with scraps of fabric, I was just so intrigued that I started trying to find out more the history of it. … I started collecting these old quilts that I that I thought were beautiful and yet well used and clearly, you know not just made to be pretty.

Marie had been collecting quilts for a couple decades before she finally learned to make her own quilts, which led her to “a wonderful community of people who care about preserving things from the past but also approaching their own projects in a new and modern way … it's all about community with me. Plus I love color.” Marie’s other favorite part of quilting is that it allows her to
[give] people gifts that you have made yourself. I think that has a great deal of meaning in the world today when everybody just gives you a gift card, so I like to do that and make quilts for babies, for people when they’re having cancer treatments, when somebody has an anniversary.

Marie and I found a strong connection in what motivates her to be a quilter and me to be a potter.

Figure 7

Marie’s Quilt

**Background.** Marie taught science for 32 years until her retirement in 2020. For the last 20 years of her career, Marie taught at “St. Mary’s,” a non-Jesuit Catholic school in a US city. Marie’s initial career plan was to be a genetic counselor, but she realized “that can be a pretty depressing job because most of the children are sadly affected by terrible disorders, and it didn’t fit my personality very well.” She then decided to pursue a research path, working on lab work investigating metabolic disorders at her university, but found that “working by myself all day at a lab also does not suit my personality.”
Marie realized that her role as a teaching assistant was the most enjoyable part of her work at the university. Through talking with her mother and other family members who had been teachers, Marie decided that “maybe God is trying to tell you something,” so she took education classes at night to earn a teaching degree. Marie was hired to teach science at an Episcopal school, and then spent six years teaching overseas in Brazil and Japan. When she returned to the US, Marie taught at another Episcopal school for four years before joining St. Mary’s. As a Catholic, Marie found St. Mary’s to be “a good fit” for her; she had always “liked being able to pray with the kids” in the Christian schools she had taught in, because “they tell you a lot more about their lives when they ask for prayers and stuff.” Marie is a lifelong birdwatcher, and her love of nature also profoundly shaped her teaching approach.

At the time Marie began teaching at St. Mary’s, the school had only about 60 high school students and had just moved into its own building. Over the course of Marie’s 20 years there, St. Mary’s grew to about 100 students per grade and expanded into middle school. Marie retired early due to the COVID-19 pandemic. She had taught virtually for the final three months of the 2019-2020 school year, but she did not return when St. Mary’s went back to in-person schooling in the fall of 2020 because of the risk to her husband who was undergoing chemotherapy.

**Institutional Context.** St. Mary’s has a student population that is predominantly middle class but economically diverse, with more than half of students receiving some form of financial aid. The school has a strong academic reputation and deeply committed families. Striving “to develop the student as a person fully,” St. Mary’s emphasizes fine
arts, music, drama, and sports, in addition to its academic focus. All St. Mary’s students are part of the school’s “household program,” which Marie describes as a more intensive version of homeroom:

We have sixth, seventh, and eighth grade girls mixed together with different teachers. They’ll be with that teacher for three years, every morning and every afternoon. That’s where we have prayer, where we celebrate birthdays, that sort of thing. In the high school it’s the same . . . ninth, tenth, eleventh, and twelfth grades together, girls separated from boys. . . . They work in teams on team day with their household, try to get the older kids to really mentor the younger kids . . . we say, these are your younger brothers and sisters in this group, take care of them, that kind of thing. So that was something that I found very beneficial to me as a teacher, because that family kind of approach really works well in the classroom too.

St. Mary’s has a strong Catholic identity but welcomes students of all religious backgrounds. Marie estimates that 60% to 65% of St. Mary’s students are Catholic, while the remaining 35% to 40% of students includes “just about every background you can think of.” All students take religion classes based in Catholic theology. Marie says that St. Mary’s religion teachers see this diversity as an asset, because the non-Catholic students have to defend their own faith to the others and they need to know the differences between their faith and what they’re learning about in class. We’ve had a few kids
convert, and then we’ve had a few kids become even more staunch in their beliefs of what they were taught as children.

Marie describes St. Mary’s as striving to impart a “vision of the Creator giving to us all these wonderful things.”

**Teaching with Healing Earth.** Marie remembers that she first heard about *Healing Earth* at a teaching conference several years ago, and at the time only one or two units were available online. Marie explored the online curriculum after the conference and quickly decided to use the Water unit in her Environmental Science class. The students in that class all had Chromebooks, so it was relatively easy to incorporate the online curriculum. The Water unit inspired “some pretty amazing work” in her students, so the following year Marie taught two *Healing Earth* units. She then obtained permission to use *Healing Earth* as the primary textbook moving forward. The school leadership was supportive, Marie recalls, in large part due to Pope Francis’s messages “about taking care of the environment. . . so they were happy with that.” Marie had a great deal of freedom to use her discretion in designing the Environmental Science curriculum, which was an elective course. Marie was the chair of her department, and she would send the course descriptions to a dean for approval. In Marie’s words,

I really didn’t have to jump through a lot of hurdles, it was really just what I felt the kids needed to cover to have a good background … a little environmental science and a little ethics in how we treat the world.

She never experienced any pushback or pressure to change what she was teaching.
because the parents loved it. … They’re like, “my kid comes back and talks to me about your class!” … and because it’s very clear that the way Healing Earth approaches this from the Catholic perspective. I sent all the parents a link to the book, as well as the kids, and I said please just go on, read their introductory chapter, especially when I went away from having a paper textbook that first year … it was a big deal for me to make sure the parents … knew what we were going to be doing. So I have to say, out of all my classes that I’ve taught in my life, this one was the easiest with the parents. … I never heard anything except “this is great!”

Marie had previously used a more conventional environmental science textbook, which she describes as, “I won’t say dry but a pretty straightforward science approach, like here’s the terminology, here’s an example.” Healing Earth was a better fit for Marie’s creative approach. She describes herself as “one of those kooky people” who “likes to sing … likes to be creative.” In her chemistry class, for example, Marie would have each student make chemistry-related Christmas ornaments for the class “chemis-tree.” Marie also enjoys language arts – she had “kind of wanted to be an English major” when she was younger – and she regularly incorporated creative writing into the environmental science curriculum. In one memorable example Marie shared with me, she “got some just beautiful, heart-wrenching work” in connection to the Water unit. The class watched videos showing how people are sometimes denied access to clean water, such as communities in India whose water supply was depleted because a Coca-Cola plant extracted nearly all the groundwater. Marie assigned her students to
write a journal, like one week in the life of a person living there … and they can pick – was it the activists, was it the group from outside coming in to help, or the one man who married three women so he had enough women to go get enough water… So they could choose their own positive change, and it was interesting because quite a few of my really empathic kids put themselves into the story as coming with the aid society, or coming in to bring water, joining the volunteer movement to help. So it was very interesting to see a lot in their psyche, how they approached it. I had one boy who, his resolution to the problem was, he committed suicide, because that was part of the story we had seen, that a lot of the farmers in India were just killing themselves because they had no water and saw no hope. So I had a talk with him, I said, well, I wasn’t expecting anyone’s resolution to be suicide, and he said, “But, that’s what’s happening to so many people and I think we have to really face that.” So it was a project that made them really think and let them put themselves in the place of the person suffering, and then possibly also in the place of someone who’s there to help.

Marie described this project as “having a pretty strong effect on the lives of some of these kids … making them really think about privilege and the lack thereof.”

Marie also described a project she conducted as part of the Biodiversity unit, in which she asked each student to choose a continent and then narrow their focus to one area within that continent:

They had to come up with a way to study the biodiversity in the area where they were, who would they need to help them, and based on some of the readings we
had done by E. O. Wilson they had to make suggestions for things they would do to help maintain the biodiversity in their area. Prior to that we would do study in the campus, because my campus was just terrible, it’s like a dead zone, it’s on a hill near a highway, very few trees and all that, so we would do the biodiversity on our campus, and then we would go down the hill to [a nearby nature park] and take an area about the same time and try to do biodiversity there, just to show them what happens when you take out the trees, the grass … what’s the difference. Because I wanted them to get the idea that … to protect the organisms you have to protect where they live. … It was interesting to force them to try to think like a scientist. … I heard them have really good discussions, like, “In my area of the continent there’s really good biodiversity, how come there isn’t in yours?” Then they would look at a map and go, “Oh, there’s all these cities, all these people here!”

Marie’s environmental science class frequently visited the nearby nature park, which is a “birding hotspot.” The class conducted “a yearly water survey” there, learning “to take water samples and test for oxygen and other samples, and we would collect organisms with nets, and they would see what they would find to determine the quality of the water.” Healing Earth does not include lab resources, so the class used their old environmental science textbook as a guide for this type of activity. Marie found that it easy to incorporate other resources into Healing Earth-based units: “The [case study] gets the excitement and the interest, … the content gets them started, and then you can take them down different paths, and it was easy to do.”
Marie promoted *Healing Earth* to other Catholic school teachers at statewide conferences. She said that the near-universal response among those teachers was “oh my gosh, this is great.” However, Mary heard from some of these teachers that they did not have the same freedom and support to teach *Healing Earth* that Marie was granted at St. Mary’s. In Marie’s understanding, this was mainly because these teachers were from Catholic diocesan schools, which tend to have more prescribed curriculums, while St. Mary’s has more curricular freedom as a private, affiliated Catholic school. Still, Marie said several of the teachers she introduced to *Healing Earth* “used pieces [of the curriculum] and found it very beneficial, especially the upper level teachers.”

The biggest challenge for Marie in teaching *Healing Earth* was that she “had to prepare quite a lot of support material,” such as guided reading questions that she used to make sure the students completed the assigned readings. Because those kinds of materials were not available on the *Healing Earth* website, it could be a bit “tedious” for Marie to regularly create those materials from scratch for her class:

because I had been teaching for 32 years, I was able to do those things myself, but if it was a new person attempting to go into this style of teaching that’s very different from a typical science book … it would probably be a very beneficial thing if the authors could begin looking at creating some sort of support materials for students who aren’t able to read well, second language students, that sort of thing.
While Marie enjoyed teaching *Healing Earth* and was willing to put in this extra work, she suggested that *Healing Earth* might be used much more widely if it included those kinds of support materials.

*Healing Earth* content connected with the local community and students’ lives in memorable and unexpected ways. After the class studied the Coltan and Cell Phones case study in *Healing Earth*’s Natural Resources unit (IJEP, 2020f), Marie learned that a local chemical company had a mining operation in Africa and was striving for a socially responsible approach in light of the issues explored in the case study. After arranging for a representative of the company to come and speak with the class, Marie says, “The kids were astounded, and so was I, because I had no idea how globally interconnected all these problems were. So that was really a cool opportunity to have him come talk with us.” Students also came up with their own connections to *Healing Earth* content:

Most of the kids would take the class as a junior, so I would still see them around senior year. And I would have kids come up to me, like, oh, my dad had this article, you would like it! And it would be from a chemical journal, about something happening in the world related to mineral rights or whatever. … They were still, a year later, trying to bring me stuff so I could use it with the class for that year.

*Healing Earth*’s integral ecology framework generated connections across the curriculum, too. There were, of course, connections to math and to other science classes, in addition to creative writing activities like the fictional journal-writing project described above. Unfortunately, it was not logistically feasible for Marie to coordinate cross-
curricular projects with other teachers because the environmental science course was only one section for one semester, so the roster and schedule did not align with other courses.

The students also drew connections to their religion class, which for juniors was Apologetics, by discussing how Catholic teachings about caring for Earth could be used to defend and promote the Church. More generally, Marie incorporated spirituality into class discussions in the environmental science class, and by having students explore their ideas about the spiritual components of nature through journaling and poetry. Each class began with a prayer, and once a week they said a prayer for the environment written by the Pope. On some of their trips to the nature park, Marie would have the students “sit silently and close their eyes for three or four minutes to experience nature … how it lifts our spirits. And some of them really like that and others were uncomfortable with it, but it’s good to experience anyway.”

Marie created posters of Healing Earth’s ethical framework, which she displayed in her classroom. She tested students on the ethical framework by providing “a little scenario that wasn’t exactly the same as what we’d talked about in class, and I would say how would you apply the ethical framework to this problem, what would you suggest, that kind of thing.” The students sometimes struggled with the language of the ethical framework: “They knew what they wanted to say but they weren’t using the right terminology to illustrate it, so that took a while to get them get that figured out.” By the end of the semester, however, her students were comfortable not only explaining the terminology of the ethical framework but putting it to use.
In one of Marie’s last years at St. Mary’s, some of her students started to tell her they found the class “depressing … we’re always talking about terrible things!” While Marie responded with honesty – “This is what is happening, this is where the Earth is” – she decided to highlight “heroes of the environment” as a way to instill a more hopeful outlook in her students. Marie assigned students to prepare PowerPoint presentations about people who had worked to make a difference for Earth:

That helped them a lot, to see in depth, a little longer period of time, who was working to help. But they were very upset that we were all picking individuals, but it wasn’t the government. … but I did have to get that group off of the negativity, because they’re like, “you always start us off with something that’s horrible,” and I’m like, “sorry,” because it can be overwhelming when you’re a young person to only see that, so it was good for them, they told me, to spend some time on the positive part.

Marie’s final three months at St. Mary’s consisted of virtual teaching on Zoom, due to the COVID-19 pandemic. Marie is “definitely not a person who wants to teach online.” Marie missed being able to be with the students and take them to the nature park, and she found that “the discussions were really impeded by Zoom because they couldn’t interact without turning their mic on, turning their mic off.” Still, she did her best under the circumstances. One online activity Marie found to be successful was “Goose Chase,” which she describes as “an online website where you can set up events for people to do on their own.” Using this site, Marie assigned her students “to do food chains at their homes” by taking photos of predators and prey they could find in their neighborhoods.
Marie believes her use of *Healing Earth* was “good timing for my career” as it served to “re-energize” Marie for her last few years of teaching.

One of the things that I always discussed with my department was the importance of re-energizing yourself in your teaching and not doing the same old thing every time, because it becomes stale to you, and it becomes stale to your students, and it's hard to engage people at the level you want them to be engaged when you're not. Teaching Earth science and life science and environmental science, it can get really dry – especially with some of the textbooks I’ve had to use … And *Healing Earth* is anything but dry. It was very engaging for my classes and that led me to spend more time on it myself and learn more about the subject matter outside of what was available in the textbook so that I could bring that richness to the class.

Marie attributes the students’ ongoing engagement with the *Healing Earth* content to Marie’s own engagement with the curriculum:

I think that's why my students would come back in the hallways to say, “Oh, you need to bring this to the class,” and share with me things that their parents had talked about, or that they had seen because that interest was embedded and ingrained in them.

**University-Level Educators**

Here I present two vignettes profiling the three university-level educators I interviewed. All three participants teach in Jesuit universities. I combine two participants’ interview data in the second vignette, because those two participants co-teach their *Healing Earth* course together in the same university.
Vignette 3: “Iñigo”

The participant I profile here chose the pseudonym “Iñigo” in honor of Saint Ignatius of Loyola, who founded the Society of Jesus (Jesuits). Iñigo is a priest and theologian who teaches in a Jesuit university in the US that I am calling American Jesuit University (AJU). This vignette summarizes the data from my two interviews with Iñigo.

Artifacts. Iñigo brought two artifacts to the interview and asked me to choose which artifact to include in his vignette, because he could not decide which artifact he preferred. I decided to include both artifacts, because both artifacts have theological significance and complement one another in their depictions of the Jesuit approach to spirituality.

The first artifact Iñigo showed me was a miniature sailboat (see Figure 8) that is mounted on Iñigo’s wall. Iñigo loves being on the water, especially kayaking, but his primary reason for choosing this artifact was “because of the significance of the wind.” Iñigo explained,

The sails are the wings that we need to open up, to let ourselves be carried by the wind. The wind is also the spirit, the spirit of God – all we need to do is open up and let the spirit lead us.
The second artifact Iñigo showed me, which he described as “more philosophical,” was a nesting doll (see Figure 9). Iñigo explained that the many layers of the nesting doll represent “the self-reflection, self-awareness that we need to go deeper and deeper to find our own identity.”
**Background.** Iñigo is from the state of Chihuahua in northern Mexico, where he was the oldest of five children. His paternal grandfather was a carpenter, his maternal grandfather was a farmer, and his father was an electrician. “So I always was grounded in the day to day work, in both areas—as a carpenter and electrician—and also a deep love for the fields, the land, and nature.” Iñigo entered seminary after high school and, 28 years ago, was ordained as a priest. He had been drawn to Jesuit spirituality ever since childhood, so he came to the US to study theology at American Jesuit University (AJU).

Iñigo took a leave of absence from his ministry, because he “had a blessing—even though the circumstances are quite complicated—of having a child,” and Iñigo “has taken care of him since literally the day he was born.” Iñigo’s son is now 18 years old and thinking about going to AJU.

Iñigo is a theologian who specializes in the New Testament and early Christianity. He told me that his “studies of the Bible show me the diversity, the multiple voices as a polyphony in the Scriptures.” As an educator, Iñigo aims “to lead the students to a deeper, better understanding of the self, of others, of the world around them,” which he sees as a common goal of educators, theologians, and scientists. Iñigo’s approach is grounded in a

love for and commitment to education in a holistic way in the Jesuit tradition, the *cura personalis*, so the care of the student and the student’s family, but also expanding this and moving into the environment, Mother Earth, the care of nature, so it’s part of our education.
Iñigo sees potential for the *Healing Earth* project to have “very important repercussions for education at all levels.” As an example, Iñigo spoke of his youngest brother, who works for the municipal government, “taking care of parks and the beauty of the town,” for their home town in Mexico:

I told him, in order to transform, to really make these changes, we need to introduce questions on the environment in the curriculum of the schools. He agreed and he is having conversations already with teachers, especially elementary, middle education, high schoolers, of how to incorporate elements in their curriculum about the environment as an essential core course for that. Iñigo told me that his son was also taking a class focused on environmental issues, “So we have conversations about this and I think it’s part of the way we interact … sharing my values, my vision, my love, my care for Mother Nature.”

**Institutional Context.** Iñigo teaches undergraduate- and graduate-level theology courses at AJU, a private Jesuit research university with more than 10,000 students distributed across multiple campuses in a large US city. AJU presents a mission explicitly focused on social justice. Its students are predominantly middle- and upper-class, but the university is striving to increase the diversity of its student population.

**Teaching with *Healing Earth.*** Iñigo first learned about *Healing Earth* from one of project co-directors, with whom Iñigo had previously corresponded through his efforts to incorporate ecology into his theology courses. Iñigo has used *Healing Earth* extensively as part of a course for undergraduate transfer students called Ignatian Traditions, which he described as grounded in three “key elements”: globality;
interdisciplinarity; and the Jesuit concept of *cura personalis*, or care for the whole person. In teaching the Ignatian Traditions course, Iñigo said he “had the freedom to do pretty much anything that was about Jesuit traditions in education,” so he was excited to learn about *Healing Earth* while the curriculum was still in development.

The Ignatian Traditions class has students “from all over the world,” and Iñigo describes the students as “amazing” in their cultural, linguistic, and religious diversity. These students tend to be “a little bit older” than in a traditional entry-level undergraduate course, because they have all completed at least one year in another university. “I actually had a few seniors in class,” Iñigo told me, “and some of them were coming back from leave of absence, working, so they had really good life experience in their pocket already.” Ignatian Traditions is a requirement for these transfer students, and Iñigo recognized early on that most of them would not have taken the course by choice, so he strove to make the curriculum relevant to students’ interests. “I told them, let’s make the best of this experience.” Iñigo rearranged the classroom to be more conducive to discussion, and he “encouraged them to own the course.” Iñigo “found common ground among the students” in their “care for the Earth” and “social concerns.” He told me that “No matter where [the students] came from, they have this special sensibility of social justice, and … the care for Mother Nature, Mother Earth, Sister Earth.” In response, Iñigo “started developing the curriculum around this concept: the diversity—what I call also globality—so we are one home no matter where we’re coming from.”

Iñigo incorporated both *Healing Earth* and *Laudato Si’* as major texts for Ignatian Foundations, along with various other texts including *A Jesuit Education Reader* (Traub,
2008); Ignatian Humanism (Modras, 2010); Political Trauma and Healing: Biblical Ethics for a Postcolonial World (Brett, 2016); and The Jesuit Guide to (Almost) Everything: A Spirituality for Real Life (Martin, 2010). Iñigo told me that his students responded enthusiastically to Laudato Si’, as they were “positively surprised” to find that in the Church we have this concern or commitment with the environment in this very ecumenical, interreligious, even secular way. Even the scientific language, data, that we find in the documents. So that was a good surprise for them, and they liked that – they’re like “Oh, it’s not just praying,” it’s also doing social action, sensitivity with the poor, the oppressed, those on the margins.

In a memorable example he shared with me, Iñigo invited his students to join him in a march honoring the Martyrs of El Salvador (see Sobrino, 2015). Pointing out that “the term martyr . . . means to witness,” Iñigo told me how he and his students carried signs with phrases including “I’m a martyr,” “Love,” and “Solidarity,’ ending the march in a cathedral where they celebrated mass together.

Iñigo promoted a classroom culture in which “we all shared our experiences” in the Ignatian Foundations course, and he believed that this discourse was enhanced by the diversity of students’ religious backgrounds. For example, one of the students taught Iñigo about Jainism, a religious tradition with a belief in the sanctity of all life and an exceptional commitment to protecting all living beings. Iñigo also “found common ground” with Muslim students’ conviction that “we’re all brothers and sisters” and their understanding of Earth as “our common home,” or “la casa común” as Iñigo expressed the concept in his native Spanish. Iñigo emphasized the “inclusiveness” of the Jesuit
approach, exemplified by James Martin’s (2010) respectful engagement with the growing numbers of people who identify as “spiritual but not religious” (p. 44).

For their studies of Healing Earth, Iñigo’s students formed six groups of five to seven students each, with each group focused on one of the six units. Iñigo told me that students of all majors found elements relevant to their interests in Healing Earth. He also found Healing Earth’s call to action to be an apt representation of the Jesuit approach. “Because that is one of the things that I find among the Jesuits, they don’t just want to learn, they also want action, a commitment to do something.” Iñigo asked students to reflect on the kinds of action they want to take in their lives. For the interdisciplinary research project based on Healing Earth Iñigo asked the students to research and eventually present a summary of their research based on their major in an interdisciplinary and global context. For instance, if someone was majoring in medicine, or law, or education, or social work, they needed to connect their major with other disciplines and with other students in their classroom … so the interdisciplinary piece in their paper [was] from the perspective of their major. And then the question, or the goal for that essay, was how could they contribute to the common good, specifically regarding the environment, from their specialty, from what they really love to do.

Students’ ideas reflected the diversity of interests and majors represented in this course. These included a pre-med student’s plan for a public health initiative to address the lack of safe drinking water in US cities like Flint, Michigan; a business major’s proposal for a company to sustainably provide shoes and socks to people in need, intended as a
refutation to our “throwaway culture” (Francis, 2015a, §22); and a law student’s aspiration “to advocate for the environment” as a “defense attorney for nature.” Iñigo said he “got really good feedback from the students” in response to this project, “because they were doing what they wanted to, working within their major, open to other disciplines, in an international global context. … committed to the common good, specifically to issues of the environment.”

It was evident in my conversations with Iñigo that the principles of integral ecology are fundamental to his worldview. Iñigo expressed a love for science, and one of our conversations touched on subatomic physics and the “search for the ‘God particle.’” He rejected the idea that there is inherent division between the work of scientists and that of theologians, as both fields have the same goal: “to understand the world around them.” He further explained,

To illustrate that point we can go back to stories of creation in the Bible. In the book of Genesis we have two creation accounts. In the eyes of the author, that was science – that was a way of explaining how everything came about [based on] the tools the author had … So it’s science that was eventually called religion or theology, but ultimately it’s a development of science. Now we have other instruments that have expanded and deepened our understanding.

Iñigo told me that his teaching emphasizes the concept of “common good,” a term that “Pope Francis uses extensively” (e.g., Francis, 2015a, §18). He suggested that this concept can serve as “common ground” between scientists and theologians in their work today: “Scientists, at least in principle, should promote the development of the common
good, and that is pretty much at the center of theology.” Iñigo asserted that “one of the most fundamental common goods is Mother-Sister Earth, who we are to respect, and to share, and to dwell in—even to adore, if you wish—this sense of awe, admiration, respect.” Even though, “for practical reasons,” Iñigo did not go outside with his students during class time, he told me that

I constantly encourage them to get in touch with nature. Even during the pandemic, one of the ongoing recommendations was to walk in the park, for instance, or to help plant at home and take care of that plant and see the growing and dying process of the plant, to help us get in tune with nature. Things like, instead of checking the weather on their cell phone or the news, take a look outside, go outside yourself. Something is missing because—especially with younger kids—everything they want to find is on the cell phone. It’s like, “take a look outside! Experience the weather yourself!”

Iñigo noted that the students struggled to articulate the distinction between intrinsic and instrumental value when studying Healing Earth’s ethical framework. “Eventually,” he told me, after revisiting these concepts and emphasizing their importance, his students “started to not only distinguish but also appreciate the intrinsic value of nature.” An activity that served as “a very illuminative example of intrinsic value” was connected to the class’s studies of Healing Earth’s Food unit (IJEP, 2020c). Iñigo invited all students “to bring food according to their own cultural backgrounds” to share throughout the class. Iñigo encouraged students to experience “sharing food and enjoying food itself,” with a contemplative mindset:
I encouraged them to sit in the moment and stay in the moment and enjoy the food, and the company, taste the different textures, flavors of food. … I encouraged them … as much as possible to cook yourselves whatever you bring, because it has what I call a sacramental meaning to it, so it’s not just these tacos or this food, whatever the background would be, but also invite them to think about the tradition that came from mom or dad or grandma. She taught us how to cook this and we did this on special occasions, so all those reflections—while we were having the dinner or meal, simple—help us to understand the intrinsic meaning of food, for instance.

Eating together—“an element all cultures share”—built connections and contributed to a sense of community with his students, which became an important component of the Ignatian Foundations course experience.

Iñigo told me that a shared meal was one of the last activities he did with his class before they had to transition to online learning in response to the COVID-19 outbreak in the spring of 2020. He described this change as “a loss in multiple respects” and “a huge loss for the experience of this course specifically.” Even though the students still submitted some high-quality work, the educational experience of the Ignatian Foundations course “did not translate … many of the students would just turn off the cameras, we were just guessing who was doing what or paying attention.” In Iñigo’s experience, the class “lost that real face to face experience, dialogue, conversations about all of our backgrounds.”
Overall, Iñigo described a universal concern for ecological issues among the students in his Ignatian Foundations course. Above all, students expressed “a sense of anger, disappointment,” especially toward “older generations abusing Earth … like, what the heck, what have you done to us? Not just to Earth, but all to us, being aware that we are part of Nature.” However, Iñigo told me that “most importantly,” his students expressed a profound sense of commitment, a call to action. Some a little bit scared yes, some fear, but beyond that, “let’s do something, we can do this, we can change.” Starting with personal changes, like the students stopped using plastic bags. One student gave the whole class reusable bags for groceries. And using bottles—most of us go to the class with water, so from the beginning that was one of the examples, so for instance you can bring your own thermos for water and use it permanently, pass on the word, and they did. … I was able to tell in one semester a change in attitudes, use of energy, use of water, you name it.

While Iñigo witnessed his students taking action primarily in the form of lifestyle changes, he expressed confidence that the students would take action “more systematically” in the future, because “many of them were thinking of applying these concepts and principles in their careers.”

**Vignette 4: “Paul” and “Wondama”**

This vignette presents interview data from two participants, who chose the pseudonyms “Paul” and “Wondama.” These two participants are colleagues who co-teach a university course based on the *Healing Earth* curriculum. I introduce each participant
separately and then combine their interview data to present their accounts of their institutional context and experiences teaching Healing Earth\textsuperscript{6}.

**Paul.** Here I introduce Paul, a Jesuit priest who has taught a university-level Healing Earth course since January 2016.

**Paul’s Artifact.** For his artifact, Paul chose garlic, which he called an “ecological artifact.” Paul presented this artifact to me by displaying an image of garlic as his Zoom background (see Figure 10) during our first interview. He explained that he chose this artifact because he considers garlic a “special medicine,” which he “[uses] any time I get an infection.”

Figure 10

*Garlic (Paul’s Zoom Background)*

**Paul’s Background.** Paul has served as a Jesuit priest for more than 50 years. Most of Paul’s work has been in universities, where he has worked as both an

\textsuperscript{6} I italicize the title “Healing Earth” when referring to the online curriculum. When the title “Healing Earth” is not italicized, I am referring to the course based on the *Healing Earth* curriculum that is taught by Paul and Wondama.
administrator and an instructor. Paul’s field of expertise is agricultural science. He has taught courses in agricultural sciences and related subjects including food policy, urban farming, and introductory sciences in a public university in the US and in multiple universities in Southeast Asia. Paul is currently a senior lecturer in a Jesuit university in Indonesia that I am calling “Indonesian Jesuit University” (IJU). Paul previously served as president of IJU, and prior to that he had served as president of two other Catholic universities in Southeast Asia.

Paul has long been an active contributor to the International Jesuit Ecology Project. While Healing Earth was in development, Paul told me, the co-directors invited him to “to be involved in the section about food systems because it’s related to my study background.” Paul was teaching at a university in the US at the time. He traveled to Loyola University Chicago three times and “worked actively as a partner” in the development of the Food unit. Paul told me that he made most of his contributions as a Healing Earth author while he was physically present at Loyola, because he was too busy to put much time into the project outside of those visits. However, Paul’s work with the Healing Earth project did not stop there. “I told myself I wanted to be actively involved in following up with the textbook, so I decided to teach Healing Earth as a class from January 2016 until now.” More recently, Paul “decided to translate the English textbook into the Indonesian language” to make the curriculum more accessible to his students. After receiving permission from the Healing Earth co-directors, Paul spent a year translating the text. At the time of my second interview with Paul, the Indonesian translation of Healing Earth was in the process of being published by a local “printing
house owned by the Society of Jesus.” With the translation complete, Paul told me that his new project is to bring Healing Earth to local high schools:

I already met with some teachers from the Jesuit high schools in the field of biology, to help me to prepare another textbook for students at the high school level. The idea of IJEP [was] not only providing the textbook to university students but the same textbook should be used for helping the students in high school. But I decided that it’s so difficult for them, I decided to write another textbook together with a team of teachers [who] have expressed readiness to help me. So I hope that next year I can have another book for the secondary high school level. Because it’s so important, this Healing Earth textbook.

There are six Jesuit high schools in Indonesia, and Paul is confident that all of these schools will use the adapted version of Healing Earth. Paul smiled as he told me that nearly all of the biology teachers in these schools are his former students.

Wondama. Here I introduce Wondama, a lecturer in science at IJU who co-teaches the Healing Earth course with Paul.

Wondama’s Artifact. Wondama sent me a picture of his “favorite musical instrument,” a guitar (see Figure 11). Wondama’s neighbor taught him to play guitar when he was 13 or 14 years old, and Wondama now enjoys playing guitar for his own children. Wondama told me that he chose the guitar as his artifact because it represents his preferred mode of learning, which he calls “learning by doing.” As he explained, I didn’t take any guitar course, I just learned from hearing and learning from watching people play and interact with them directly. Like when my friend played
a song that I liked, then I asked my friend to please teach me how to play it. …

For almost everything that I learn, I learn by myself. So it is like when I learned
guitar from zero until now, I practiced every day one song that I want to play until
I can play the song. And that’s why I chose guitar to represent myself, because I
like learning by doing and learning by process.

Figure 11

Wondama’s Guitar

Wondama’s Background. After completing a bachelor’s degree in biology from
an Indonesian university, Wondama worked in Jakarta for an international non-
governmental organization (NGO)
to conserve a protected mangrove conservation area, this is a small mangrove area
in the north of Jakarta that is still being saved from the land use because the area
around the mangroves are being turned into apartments, into industrial complexes. So this is one location that we campaigned for … to raise awareness especially for urban people to care for the environment.

After four years with that organization, Wondama was hired by another NGO looking for hotspots in Indonesia, especially with mercury contamination, so everything related to toxic materials. This is quite different from the first job that I worked. The first one was mostly for conservation and then youth engagement, school activities; and then the second one was mostly doing campaigns to influence government policy, to raise awareness to the government to care about heavy metal pollution.

Wondama then moved to New Zealand where he completed a master’s degree in environmental management. He then returned to Jakarta where he worked for another NGO “working for air quality improvement … related to energy, clean transport.” After 11 years in Jakarta, Wondama’s family wanted to live in a smaller city, which led him to pursue his current position as a lecturer at IJU, which he began in 2018.

Wondama explained to me that he had initially intended to pursue a career in “pure science,” so becoming an educator was a significant transition for him:

It was a different working environment, where you have to care for people, especially young generations. You have to take care for not only one semester, but you need to work with them for almost 4 years until they graduate. I hadn’t had any teaching experience before, so it was again like learning by doing.
Wondama described his initial teaching approach as “monologic … I talked from the beginning until the end.” So he resolved to be a more effective educator, asking his colleagues’ permission to sit in on their classes and study their techniques:

I learned from my peers … how they engaged the students in the class, and I learned that as an educator I don’t have to take control all the time. … Let the students be active. I learned that as an educator we position ourselves as facilitator.

In addition to Healing Earth, which Wondama has co-taught with Paul since August 2018, Wondama teaches Biodiversity and Practical Ecology courses at IJU.

**Institutional Context.** IJU is a private Jesuit research university in Indonesia with more than 10,000 undergraduate and graduate students across multiple campuses. The student population is primarily Indonesian, but IJU has several international programs and includes students from throughout the world. Paul told me that IJU students are approximately 60% Catholic and 25% Protestant, and 14% Muslim, with a small percentage of Confucian, Buddhist, and Hindu students. IJU’s mission emphasizes academic excellence grounded in Christian and humanistic values.

**Teaching with Healing Earth.** Paul launched the Healing Earth course at IJU in January 2016, and Wondama began co-teaching Healing Earth with Paul in August 2018. The course is offered every semester and is open to all IJU students. Classes meet once or twice per week and typically last between 90 minutes and 110 minutes per session. The Healing Earth course is housed by the Biology Education department of the university, but it is an elective course that is classified as “cross-faculty” because it includes students
from all departments of the university. Both Paul and Wondama described Healing Earth students as highly diverse in terms of their academic interests and aptitudes, religious affiliations, and geographic origins. Indonesia is a large and diverse country with 34 provinces, and according to Wondama, 24 of these provinces are represented by Healing Earth students.

Paul told me that the Healing Earth class has consistently high enrollment numbers, with “at least 80 students every semester,” and sometimes as many as 150 students in a class. I asked both Paul and Wondama what they believe are the students’ primary motivations for enrolling in Healing Earth. Wondama told me,

I think because they care about the environment, about saving the Earth. Because I think they are exposed to campaigns to save the Earth—those are quite extensive nowadays. So I think they get the information from social media, from YouTube, from Instagram, et cetera, to save the environment, and they’re interested in getting involved.

In response to this same question, Paul told me “I don’t know,” but he speculated about some potential motivations. He supposed that some students are attracted to the course because it is “very new for them, and they can learn a new subject [different] from their main subject.” Another likely reason, Paul told me, is that the students “want to improve their English,” and they know that Paul and Wondama “usually combine English and Indonesian language” in their instruction. Paul also told me that a high proportion of Healing Earth students tend to be pharmacy majors. “Pharmacy students love the Healing Earth course,” he told me, “because they can really relate their field to the environment,
especially when they are going to a career in medicine.” Paul explained that “the pharmacy study at the Jesuit university is inclined toward holistic healing, using alternative medicines or Chinese traditional medicine,” and he believes the ecological approach of *Healing Earth* might help pharmacy students to “combine the Western medicine and Eastern medicine approach.” Paul clarified that “I’ve never done research into” students’ reasons for enrolling in *Healing Earth*. “Maybe later I will do a survey to learn about their motivation.”

Paul and Wondama typically divide the teaching responsibilities between them, with each lecturer responsible for teaching three of the six *Healing Earth* units. Usually, Paul leads the teaching of the Water, Food, and Natural Resources units, while Wondama is responsible for Biodiversity, Global Climate Change, and Energy. While conducting the course online during the COVID-19 pandemic, they both told me, they have adopted a more collaborative approach of co-teaching most class sessions together on Zoom. Paul described the general structure of the class sessions. They typically spend the first 15 minutes conducting a quiz. Next, they spend about 20 minutes watching a video related to the reading. Either Paul or Wondama then delivers a lecture, which is followed by a class discussion and time at the end for students to ask questions about the material. The major class assessment each semester is a local case study, which is conducted as a group research project with a culminating paper and presentation to the class.

The instructors assign a reading from the *Healing Earth* textbook in advance of each class session, and the quiz serves to ensure that the students complete the reading and to inform the instructors of the students’ level of comprehension of the reading.
Students who do not achieve a minimum score on the quiz must repeat the quiz in the following class session. Both Paul and Wondama described a high degree of variation in students’ abilities to comprehend the material, which is one of their biggest challenges in teaching the Healing Earth course. Some students, they told me, put great effort into the readings but still receive low grades on the comprehension quizzes. Paul and Wondama attribute these students’ struggles to lower levels of both academic preparedness and English proficiency, and they expressed hope that the Indonesian translation of the Healing Earth textbook will help to mitigate this issue. Paul and Wondama both noted that students who struggle to comprehend the Healing Earth text are disproportionately from regions with high poverty rates and lower education standards. Paul explained that the Jesuit concept of cura personalis, or care for the whole person – “especially those who are behind” – is an emphasis for all of the IJU faculty:

We have to give special attention to them. This is part of our tradition. We have been so happy when we see that those special students from poor areas or marginalized areas were able to pass the exam and finish their studies in the university. This really is a source of consolation, we usually celebrate this together.

One strategy they use to support these students, Paul told me, is “to put them in groups so they can interact, know each other, learn from each other. So it’s a kind of social interaction, and when you don’t understand you can ask your friend for help.” He explained that, even for students who struggle with the material, he tries to avoid giving low grades:
Usually the students get As and Bs as a grade. That makes them happy, and of course the learning process for me is much more effective than when I give a lower grade, because they need the joy of learning in relation to this difficult issue.

Paul called this “the American style” of grading, in reference to the grading norms he observed while teaching at a university in the US.

Paul and Wondama offered striking accounts of activities that connect *Healing Earth* to their local Indonesian context, including remarkable examples of case studies conducted by students as group projects. Paul told me that local case studies have been a component of the Healing Earth course every semester, and that this project has been “most interesting for them.” Usually, he said, he divides the class into about 15 groups for this project. Each group finds information about a local issue of their choice related to one of the *Healing Earth* units: biodiversity, natural resources, energy, water, food, or global climate change. Wondama said that there is sometimes collaboration across groups. They develop their findings into a paper, which they present to the class.

“Before,” Wondama told me, “we asked students to present in English, and I think it is very difficult to ask them to present in English.” The previous semester, he and Paul decided to give students the option of writing and presenting their case studies in Indonesian, which made it easier for them. They also recently modified the requirements for students’ final presentations of their case study findings. As Wondama explained,

It was quite difficult for students to follow the presentation on Zoom because it needs a lot of bandwidth and it’s very expensive. We changed so they can present
by recording the presentation, and then they just upload the video presentation to YouTube or Google Drive and then we just play it during the presentation.

I was not surprised to hear this, as connectivity issues arose during both of my interviews with Wondama.

Students often choose case studies related to their areas of study, Paul told me. For example, pharmacy students like to study local issues affecting people’s health, such as plastic pollution. He also said there have been “many cases” involving “water privatization.” For example, a “big company … trying to get water using deep wells” depriving the local community of their water supply. Wondama discussed the topic of biodiversity as especially relevant in Indonesia, as it is one of the most biodiverse countries in the world. “So students learn about how biodiversity occurs in Indonesia and … what are the challenges to protect it and how to get engaged in protecting our biodiversity.” An example Wondama described in detail was a case study involving “conflict about the development of Komodo National Park.” As Wondama explained,

The Komodo dragon is native to Indonesia, and my student came from that island where the Komodo dragon came from. One year ago, if I’m not mistaken, there was a plan by the government to make this a conservation island [into] a resort so the people who would come to the island to see the Komodo dragon can stay on the island to see the Komodo dragon directly. It caused pros and cons in the community, because on one side, people don’t want to disturb the population or habitat of Komodo, because this is one of their income generators, eco-tourism. And another pro … they can bring more people to come and see the Komodo it
can increase the visitors to the island. … A local environmental organization protested the government plans to revitalize the island. … This study case we showed that when we take action to conserve, it’s not as easy as they think. You have to deal with political issues, you have to deal with economics, you have to deal with the community, you have to deal with laws and everything. So in dealing with this case, we hope they learn that the perspective of conservation is not always right or wrong, you have to … compromise … kind of a win-win solution.

To help students develop this skill of analyzing complex cases, Paul and Wondama offer examples of case studies for the class to explore together. They both told me that they’ve found videos to be an effective way of presenting case studies to the students. Wondama offered an example of a video about “the use of coal for the power plant to fuel electricity” that the class watched as part of the Energy unit, generating a great deal of discussion among the students. He explained,

In Indonesia we can say that all of electricity is provided by the coal power plant. Around three years ago, there was a documentary movie made by a local documentary filmmaker that talked about the impact of coal from the mining activity and then transporting until it is used in the power plant. … It is a good source compared to the newspaper or online news site [where] you can just read the text, you don’t see the situation. But in the documentary movie you can feel the people that suffer in the location. So when you deliver the case study using the
movie, when you discuss more about not only science but dip more to ethics, dip more to spirituality by seeing other people suffering.

Videos have been an especially useful resource, Paul and Wondama both told me, while they have been teaching online during the COVID-19 pandemic.

Paul and Wondama require students to include a reflection component in case study papers and presentations. Paul told me that reflection is “a very strong tradition in our university. Even for the lecturers.” He explained that,

At the end of the semester, all members of the department meet together to reflect on their one-semester experience of teaching, administering, and serving the students. So this kind of tradition of reflection has been planted deeply in our university.

Even though “reflection is so important,” Paul commented, “sometimes it’s not so easy.” He told me that his students often struggle to differentiate between reflection and evaluation. “Reflection must be personal meaning for you,” he explained, “especially in relation to the way you manage your life, your career later, your contribution to the country.” Wondama told me that the most successful reflections are when the students “make it deep.” For example, some students have discussed how they want to collaborate, involve, engage more in volunteer activities. Some students mention that when we talk about energy and we talk about the problem with the energy, especially from the coal, they make the decision to reduce the using of electricity, turning off the light when it’s not used, something like that. Turning off the water.
One way Paul has tried to help students become more reflective is to incorporate reflection into their discussions of spirituality and ethics—for example, by asking students to reflect on what the word “spirituality” means to them.

Even though Paul is a Jesuit priest and Wondama is also a devout Catholic, they both told me that they find it easier to teach science content than to teach about spirituality. “My background is more related to science than the ethical and spiritual study,” Paul told me. As Wondama explained,

I think for the science it is not difficult for students to understand and for me to deliver the materials, but when it comes to spirituality and to ethics, it is the most challenging part. Ethics I think is easier to understand, because ethics talks about what is good, what is bad. Is this decision good, is this decision bad—something like moral guidance, something that is universal. But when it comes to spirituality, it is very subjective to the belief of the student.

Wondama said he believes it would be easier if he could teach spirituality from an entirely Christian perspective, “but when we have to teach to students with different religious backgrounds,” it becomes more difficult. He said that the Healing Earth curriculum materials are helpful for him in teaching this topic, because they provide examples from different religious perspectives and “we try to follow that flow.” Water is an easier topic to connect to spirituality, Wondama told me, because they can apply “the perspective of Christianity when we use water in the baptism. And then from the perspective of Muslims when they use the water for wudu to pray, to clean. And then Hindu … for example, the Ganga river.” Other topics, however, are not so
straightforward. For example, “when it comes to energy, it’s very difficult. … We cannot see it, we cannot touch it.” Wondama has learned a great deal from listening to Paul’s lectures on this topic, and he credits Paul with helping him find ways to “to make the spirituality more general rather than especially Christian.” Here is Wondama’s account of the way Paul connected the concept of energy to spirituality:

Energy is like inner power—like we are happy, we are angry, and that is part of energy. We connect this healing to energy and then connect this energy to spirituality. If you have good energy, you are happy, and it relates to your spirituality, your spirituality is good. If you have a bad spirituality, you may be placing it in anger, so that is typical of bad energy. So that is something I didn’t imagine, but [Paul] came up with that idea to teach energy. … We need to be creative when presenting something abstract to the student, and then trying to make something analogic that is simple that they can understand, especially in the spirituality part.

When I asked Paul about his approach in connecting the science content to spirituality, he told me that he mostly relies on the examples provided in the Healing Earth text. “Of course, usually I ask the Muslim students, for instance, to give more explanation, but usually they are afraid to discuss their religion.” Paul explained that IJU’s Muslim students tend to be “from very moderate Muslim traditions, and they are not so familiar with the Qur'an. Usually those who are really devoted to the Qur’an prefer not to study at a Jesuit university.” Wondama, meanwhile, told me that he also learned from his students’ diverse spiritual perspectives, and he has found that each religious tradition has
its own strengths when it comes to making ecological connections. For example, “it is very easy to teach biodiversity to the Hindus [compared] to the Christians.” He explained that Hindus “learn the flowers in their home because in their offerings they always use flowers: specific flowers to present to specific gods.” Therefore, “when you talk about biodiversity, about conservation, especially the ones that are close to their back yards, for the Hindus this concept is very easy to understand.”

Paul and Wondama both told me that they address Healing Earth’s ethical framework as part of every unit. As Wondama put it, they teach “ethics based on each topic: ethics in biodiversity, ethics in food, ethics in water.” Their “basic approach,” Wondama explained, is to “at least to understand what is good and what is not good … to analyze whether this decision is ethically acceptable or not based on a standard.”

According to Paul, “in the beginning I give a lot of time to help the students really know the ethical and spiritual approach,” but “later when we enter to another topic, it’s just like a repetition … I spend not so much time on that.” Of the three foundations of Healing Earth’s ethical framework— intrinsic value, instrumental value, and environmental sustainability—Wondama told me that “sustainability is not difficult and the instrumental is not difficult, but intrinsic is not that easy.” He explained,

Instrumental value is not difficult: like water, what do you use water for? That’s not difficult. But the intrinsic value, the self-value: what is the self-value of water? That’s something abstract, not easy to understand, you have to accept that everything you find has intrinsic value.
Wondama told me that Paul’s explanation of intrinsic value was helpful to Wondama’s own understanding of the concept:

[Paul] has a specific explanation about this. When he talked about intrinsic value, it’s a value that already occurred … that we need to accept, we need to honor. Because everything that God created has its own purpose. Why God created a rock, it has purpose. The value that God inculcated in the rock, it has intrinsic value.

Here is how Paul explained his understanding of intrinsic value to me:

I use the example of intrinsic value in relation to the reason of existing in this life…. We were born without any plan for ourselves: it’s a mystery. We have to pick the reality, it’s a mystery of life. This something is what we mean by intrinsic value: only the Creator knows the value. But we have to help ourselves to find the value. This important reflection or vision of life, or dream, or kind of pursuing something that we want deeply in our hearts…. Of course, created things have this kind of intrinsic value, known only by the Creator, but we have to appreciate it.

Paul explained that this concept connects to “the sustainability value,” because “we have to take care of the intrinsic and instrumental value as much as possible and combine to take care of the environment.”

In discussing the integral ecology framework, Paul told me that the understanding that “everything is connected” has special importance to him, and that he has written an article for a peer-reviewed journal discussing the “challenge for us in transforming the
approach, in using integral ecology as a paradigm.” One way Paul explains the concept of interconnectedness to his students is by using the oxygen cycle as an analogy:

Oxygen is produced by the photosynthesis process, and then we need this in our body. The oxygen enters into our body, gives life to the body, and then of course we provide from our body the carbon dioxide, and then the plants take the carbon dioxide and change it to oxygen again.

Paul also uses examples from the local Indonesian context to explain the interconnectedness of the ecological crisis with health crises, “especially the chronic diseases: stress, depression, hypertension, diabetes, stroke, all kinds of disease really coming from the environment, the pollution, all these kinds of things.”

Paul and Wondama both expressed a commitment to “taking action” as a fundamental component of the Healing Earth curriculum specifically and of the Jesuit tradition more broadly. An exceptional example of taking action—“the real action,” as Paul described it—was the implementation of service-learning as part of the Healing Earth course in a previous semester, which was before Wondama began teaching at IJU. As Paul explained, “Going to places where people were able to take care of their environment successfully … This type of experience helps them to appreciate the action already taking place in the field.” For the service-learning projects, Paul divided the class into five groups and connected each to a community site. The students then “surveyed the prior need of the people in relation to protection of the environment, and then we decided to provide help.” Here are some examples Paul shared with me of service-learning activities the class engaged in:
For instance, I brought the students to a village where the youth groups have been involved in developing organic farming for instance. And another place, we went to the project of local governments constructing a kind of dam, harnessing a water reservoir so the people can use the water reservoir for planting during dry season. … And then another project is forestation, planting the trees: the mountain can provide water springs again after burning of the forest several years ago.

Additionally, Paul mentioned that student groups taught community members “hydroponic farming systems,” “how to make organic fertilizers using manure combined with green leaves,” and how to use marketing to sell their agricultural products. Paul described service-learning as a way of engaging students directly with the curriculum, which led them to transformative learning experiences as well as academic success in the class. Unfortunately, Paul told me he did not continue coordinating the service-learning program on that scale, “because the work is quite challenging. We had to organize the groups and we had to contact the leader of the community, all of that. But it’s a very effective learning process.” More recently, Paul and Wondama have instructed students to take action as part of their online learning during the COVID-19 pandemic. As Wondama explained,

It’s an online campaign. So based on their finding of the case study … they have to make a campaign, to make an action. During the pandemic, we get them to profile social media content, mostly for teaching people about the topics that they learn about. It is like how to engage more people to care about the problem and then engage more people … with the solution.
Paul and Wondama both told me that online instruction has generated many challenges in their teaching of Healing Earth. Beyond the connectivity issues mentioned above, both instructors commented that their students are not very communicative during Zoom lessons. As Paul explained, when they taught class in-person, “we could see the faces of the students, and then we could know more about what they feel about the material.” Now, with online learning, “I have no idea what’s happening with them, whether they’re happy or not, we don’t know. It’s difficult to check.” Paul attributed this challenge partly to their local culture, which he contrasted with the student culture in US universities: “That’s not happening in your culture, but here we have this kind of culture, they’re afraid to raise their hands and ask questions.” At the same time, online learning offers advantages for promoting what Wondama called “freedom of learning,” as IJU has invited students from other universities to participate in Healing Earth and other online courses.

Paul has the most extensive experience with the Healing Earth curriculum of my five participants, having taught twelve semesters of the Healing Earth course at the time of our interviews. “It’s been a very personal experience for me,” Paul said. “I sometimes experience a feeling of fear” about the ecological crisis, but sometimes I can be optimistic when I find people really want to change their lifestyle, their thinking about the environment. Especially when we found the local community who started, for example, cleaning the river, and students went to the river to take out the plastic waste. And students went to the beach to plant mangroves. So many activities have been growing because of the awareness of
the importance of the environment…. So for me it’s a kind of solidarity—solidarity that might be a good new force to use in the real action against global climate change…. it’s really given me a kind of spiritual consolation.

At times, Paul told me, he senses that his students feel “gloomy” about our ecological situation, but “I have to help them to feel optimistic…. because this will be a positive energy for us to produce a transformation process in dealing with the ecological crisis. This is what I believe.”
CHAPTER V

DISCUSSION

In this chapter I discuss the results of my dissertation study. I begin with a summary of my findings, which I presented in detail in Chapter 4. Next, I discuss significant findings across cases, structuring my analysis around six key themes: community and collaboration, engagement across diverse contexts, spiritual ecology in a Catholic context, perceiving Earth’s intrinsic value, generating hope, and taking action. I offer suggestions for future research and provide practical recommendations based on my findings. I conclude the chapter with final thoughts.

Summary

Here I summarize the major findings of my study that I presented in Chapter 4. I begin by summarizing the results of my initial survey, and then I summarize the results of my interviews.

Summary of Survey Results

For the first phase of my research, I sent an online survey to 14 educators who have used Healing Earth in their teaching. I obtained participants’ contact information from colleagues involved in the Healing Earth project and from information provided on the Healing Earth website. Twelve participants completed the survey, eight of whom taught at the secondary level and four of whom taught at the university level. Nine participants taught in Jesuit institutions, and the other three participants taught in Catholic
institutions that were not Jesuit. Six participants were based in the US, and the other six were in other countries.

All participants confirmed that they have used *Healing Earth* in their teaching, and nine of the twelve participants reported that they were still using *Healing Earth* at the time of the survey. According to the survey results, educators have used *Healing Earth* in a variety of ways. About half of the participants reported that they had taught courses in which *Healing Earth* was a major part of the curriculum, while the other half had used *Healing Earth* in a less substantial manner as a supplementary resource or source of ideas. *Healing Earth* has been used by participants in courses focused on a variety of topics including theology, service-learning, ecology, and other sciences, as well as in a “Healing Earth” course that follows the full *Healing Earth* curriculum. Participants reported use of all sections and components of *Healing Earth*, and all but one participant reported that *Healing Earth* met their needs “moderately well” to “extremely well.” Participants contributed several comments elaborating on those answers.

I used the survey to recruit and select interview participants. Five survey respondents participated in interviews, which serve as my study’s primary data source.

**Summary of Interview Results**

I conducted two interviews each with five interview participants. I presented my interview data in Chapter 4 in narrative form as four vignettes. The final vignette combined two participants’ interview data into a single case, because they teach together in the same institution. Here I provide an overview of my interview participant sample
overall. I then summarize each case beginning with secondary-level cases and followed by university-level cases.

**Overview of Interview Participants**

Three of my interview participants taught in universities, and two participants taught in high schools. Two Jesuit universities are represented (one of which is represented by two participants), along with one Jesuit high school and one non-Jesuit Catholic high school. Participants consisted of four men and one woman. Two participants are priests. Two participants are from Indonesia, two are from the US, and one is now in the US but originally from Mexico.

While my sample of interview participants is a diverse group, there are significant areas of overlap among the participants. Not only do all participants teach in Catholic institutions, but all identify as Catholic themselves, and it was evident in all cases that their Catholic faith and identity are important to them. Most of my interview participants have science backgrounds; Iñigo, a theologian, is the only non-scientist in the group, and he insisted that science and theology are united in their quest to “[deepen] our understanding of the world.”

**Secondary-Level Cases**

Here I summarize significant findings from my interviews with James and Marie, the two secondary-level educators.

**James.** James is a science teacher at “Jesuit Prep” all-boys high school in the US. He uses *Healing Earth* materials to guide, inform, and supplement the curriculum of his AP Environmental Science course, and *Healing Earth* also influences James’s approach
in the other science classes he teaches. James described *Healing Earth* as a “natural fit” and told me that Jesuit Prep’s students, families, and administration have responded positively to his use of the *Healing Earth* curriculum. James told me that the Jesuit Prep administration has been fully supportive of his teaching of *Healing Earth* because the curriculum aligns with Pope Francis’s messages about “care for creation, concern for the poor, and the just and right use of resources.” However, James needs to “tread carefully” at times, because “There is the underlying message” at Jesuit Prep “that we’re a Catholic Jesuit school, so the church teachings are first and foremost.” He tends to avoid discussing issues related to human population, for example, given the Church’s stance against contraception, but James’s students are welcome to share their opinions openly in class.

James often uses case studies from *Healing Earth*. For example, he described how he recently used a case study to introduce an AP Environmental Science unit on biodiversity and natural resources, leading to discussions around global and local issues with complex political, ethical, and ecological implications; key concepts of *Healing Earth*’s ethical framework; and different spiritual traditions’ perspectives on humans’ relationship with Earth. James’s classroom has poster displays of *Healing Earth*’s ethical framework, which serves “as a backdrop to everything” he teaches. He encourages his students to connect with nature by caring for plants both at home and in the school-community garden. James also assigns students to cook meals at home and has created a meatless cookbook with his students. Overall, James described his students as receptive
to *Healing Earth*’s ideas and committed to working toward a more socially and ecologically just world.

**Marie.** Marie is a retired high school science teacher who used *Healing Earth* as the primary textbook for the Environmental Science elective course that she taught at “St. Mary’s,” a non-Jesuit Catholic school in the US. After learning about *Healing Earth* at a teaching conference, Marie began incorporating parts of *Healing Earth* into her curriculum, which inspired “some pretty amazing work” in her students. St. Mary’s administration, influenced by Pope Francis’s ecological messaging, then supported Marie’s decision to begin using *Healing Earth* as the primary textbook. *Healing Earth* aligned well with her teaching approach, and she received enthusiastic feedback from colleagues, students, and families. Teaching *Healing Earth* required Marie to spend extra time creating support material such as guided reading questions, but Marie was enthusiastic about the curriculum and told me it “re-energize[d]” her teaching in the final years before her retirement at the end of the 2019-2020 school year.

Marie frequently brought the class to a nearby nature park, where they would sometimes “sit silently … to experience nature,” in addition to conducting labs such as water surveys. Marie regularly incorporated creative writing, such as an activity connected to the Water unit that asked students to write a fictional journal from the perspective of Indian villagers whose water supply was being lost to a Coca Cola plant. Another memorable project had students “think like a scientist” to identify factors affecting biodiversity in different areas of other continents. Marie found connections between issues described in *Healing Earth* and the community surrounding St. Mary’s,
such as a local chemical company with a mining operation in Africa. In one of the last semesters she taught, in response to students’ comments that they found the content “depressing,” Marie attempted to instill a more hopeful outlook by assigning her students to research and present on “heroes of the environment.”

**University-Level Cases**

Here I summarize significant findings from my interviews with three university-level educators: Iñigo, Paul, and Wondama. I present Paul and Wondama’s data as a single case because they co-teach in the same institution.

**Iñigo.** Iñigo is a priest from Mexico who now lives in the US as a theology professor at “American Jesuit University” (AJU). A specialist in the New Testament and early Christianity, Iñigo teaches several undergraduate- and graduate-level theology courses at AJU and expressed a profound commitment to Jesuit traditions and “care for Mother Nature.” One of the Healing Earth co-directors introduced Iñigo to the curriculum, which he has used extensively as part of Ignatian Traditions, a required course for undergraduate transfer students. This is a culturally, linguistically, and religiously diverse group of students “from all over the world,” but Iñigo “found common ground” in their “care for the Earth” and “social concerns.” Healing Earth and Laudato Si’ are major texts for Ignatian Foundations, along with various other texts exploring Jesuit beliefs and practices.

For their interdisciplinary research project, Ignatian Foundations students formed six groups, each of which focused on one of the six Healing Earth units. Each student wrote and presented about ways they could apply their major of study to “contribute to
the common good, specifically regarding the environment.” All students were able to connect *Healing Earth* content to their majors, Iñigo told me, and he “got really good feedback from the students.” In a memorable class activity Iñigo described, the Ignatian Foundations students all brought in food to share with each other. This activity heightened the sense of community and cross-cultural appreciation in the class, and their mindful enjoyment of the food helped the students to grasp the concept of intrinsic value. Iñigo told me he would “constantly encourage” his students “to get in touch with nature” by spending more time outdoors and caring for plants. He spoke at length about how the ideas of integral ecology relate to his theological studies and his teaching, including his conception of the “common good” and his belief in the fundamental “common ground” between science and religion.

**Paul and Wondama.** Paul and Wondama co-teach an elective course based on *Healing Earth* at “Indonesian Jesuit University” (IJU). Paul, a Jesuit priest who previously served as president of IJU, initiated the course in January 2016 after serving as an author of *Healing Earth*’s Food unit. Wondama, a science lecturer with a background in biology and conservation, has co-taught Healing Earth with Paul since 2018. Each semester, the Healing Earth course has between 80 and 150 students with diverse academic interests and aptitudes, religious affiliations, and geographic origins. Paul and Wondama discussed how students’ religious diversity created both challenges and opportunities for teaching spiritual concepts, and they described ways they have explained the challenging concept of intrinsic value. To make the text more accessible for their student population, Paul recently translated *Healing Earth* into Indonesian. Paul also
intends to develop an adapted version of *Healing Earth* for use in Indonesian high schools.

Each Healing Earth class session begins with a quiz on the reading followed by a video, lecture, and class discussion. In a past semester, Paul incorporated a service-learning course component, in which student groups worked with communities on projects involving water conservation, forestation, organic fertilizers, and hydroponic farming. Although it was “a very effective learning process,” Paul did not resume the service-learning initiative because it was too demanding on his time. The major class assessment each semester is a local case study conducted as a group research project with a culminating paper and presentation to the class. This project includes a reflection component, the best examples of which demonstrate motivation for pro-ecological action. Students often choose case studies related to their majors, exploring local issues such as water privatization, plastic pollution, and effects of commercial development on biodiversity. A case study Wondama described in detail involved “conflict about the development of Komodo National Park” that required compromise to resolve complex legal, ethical, political, and economic issues.

**Key Findings Across Cases**

In analyzing my interview results, six key themes emerged. Here I discuss my findings in relation to each theme.

**Community and Collaboration**

While collecting and analyzing data for this study, I increasingly came to think of *Healing Earth* educators as a community. Even though there was no evidence of
communication or relationships across cases, my participants were united by a shared set of educational, ecological, and spiritual values. Furthermore, all participants demonstrated a strong desire to connect with likeminded educators, especially with others who are involved in the Healing Earth project. However, despite the interdisciplinary focus of Healing Earth, my interviews did not provide significant examples of cross-faculty collaboration in the teaching of Healing Earth.

This study’s survey and interview participants consistently demonstrated commitment to Healing Earth’s ethical values and educational approach. Survey respondents overall reported frequent attempts to help students see themselves as part of nature; to instill the belief that nature has intrinsic value; to connect ecology with other subjects across the curriculum; to connect ecology with issues of social justice; and to provide opportunities for students to take action. Each interview participant, in their own ways, expressed their care for Earth and concerns around the ecological crisis. James described his efforts to help his students appreciate nature as “amazing” in connection to his larger goals of teaching “care for creation, concern for the poor, and the just and right use of resources.” Marie described how birdwatching with her family from a young age nurtured the “interest in nature” that inspired her environmental science teaching. Iñigo told me how he inherited “a deep love for the fields, the land, and nature” from his parents and grandparents growing up in Mexico, which continues to inspire his teaching about “Mother-Sister Earth, who we are to respect, and to share, and to dwell in … even to adore.” Wondama explained that, even before teaching Healing Earth, he has worked

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7 To protect confidentiality, I refrained from asking participants whether they knew one another.
for ecological causes throughout his career, including advocacy work “to conserve a
protected mangrove conservation area,” a campaign “to raise awareness especially for
urban people to care for the environment,” and leading “campaigns to influence
government policy … to care about heavy metal pollution.” Paul, a specialist in food and
agriculture, demonstrated his commitment to the Healing Earth project through his
extraordinary efforts helping to write, translate, and adapt the curriculum and to launch
the Healing Earth course he has now taught for many years, and in his impassioned
explanation of how “personal” this project is to him and his “solidarity” with the
communities he has worked with for causes of environmental justice and conservation.

In every interview, it was evident that participants craved and had pursued
connections with likeminded educators. In all four cases, participants spoke about their
connections with the Healing Earth team. Two participants, James and Wondama, had
contributed to the writing of Healing Earth. Iñigo had a pre-existing relationship with the
Healing Earth co-directors, who introduced him to the curriculum. After Marie began
teaching with Healing Earth, having learned of it at a Catholic education conference, she
initiated communication with the Healing Earth team to offer feedback and “share with
them some of the amazing work” Healing Earth had inspired in her students.

My conversations with every participant demonstrated that they strongly value
these connections, not only with the Healing Earth team but also with other likeminded
educators with whom they could share their practice. Marie, for example, had
enthusiastically promoted Healing Earth to teachers she knew at other Catholic schools.

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8 That all participants had connections with the Healing Earth team is attributable to sample bias, because
the Healing Earth team had provided the initial information for me to contact them.
According to James, one of the “wonderful” outcomes of teaching with *Healing Earth* has been connecting with the *Healing Earth* co-directors and “so many other people … from all over the world.” Paul and Wondama, meanwhile, expressed deep appreciation for the opportunity to collaborate with each other in co-teaching their *Healing Earth* course, and Paul is on a mission to expand the *Healing Earth* community to include Indonesian high schools. Survey data further supported these findings, as one respondent commented, “I would have liked more ways in which to collaborate with other educators also using *Healing Earth.*”

I was surprised that none of my interview participants described collaborating in significant ways with faculty members teaching other courses in their institutions. I do not assume that this pattern in my small interview sample holds true across all educators who use *Healing Earth*, and I regret that I did not ask this question explicitly in the survey. Still, the lack of cross-faculty collaboration is notable given the cross-disciplinary nature of *Healing Earth* and the collaborative approach of my participants in general.

**Engagement Across Diverse Contexts**

My findings include examples of *Healing Earth* engaging educators and students in meaningful learning experiences across diverse contexts throughout the world, including a range of academic levels and various areas of focus. My four interview cases include science, theology, and interdisciplinary courses in both high schools and

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9 Survey participants reported relatively frequent attempts to make connections across the curriculum in their teaching of *Healing Earth*, with an average score of 3.92 out of 5 (See Figure 4), but no survey questions or responses mentioned cross-faculty collaboration.
universities, with participants using *Healing Earth* resources in a range of ways from developing a full course based on *Healing Earth* to incorporating elements of *Healing Earth* into more conventional science curriculum. Survey data provide even more evidence of *Healing Earth*’s adaptability. In addition to high school and university contexts, one survey respondent had used *Healing Earth* with middle school students. Survey participants represented four countries: Poland, Spain, Indonesia, and the US. They reported using *Healing Earth* in such courses as Ignatian Service Learning (ISL); Geography; Scientific Culture; and Jesus & Darwin: The Intersection Between Faith and Science. Across these diverse teaching contexts, more than 90% of survey respondents reported that *Healing Earth* met their teaching needs either “extremely well” (50%) or “moderately well” (~42%). Survey comments described specific ways that participants found *Healing Earth* to be useful in their teaching, including the “reliable information” the curriculum provides; “student friendly language;” “very relevant” unit topics that “increase the ecological awareness of our students;” “examples that target the students’ lived experiences;” the way *Healing Earth*’s case studies “facilitated transfer of new knowledge into action research;” and its approach to exploring both scientific and spiritual content “in a way high school students could comprehend.”

Interview participants provided detailed accounts of their experiences adapting *Healing Earth* to their specific teaching contexts. The two US high school teachers, James and Marie, used *Healing Earth* in very different ways, but both expressed enthusiasm about their teaching experiences and the curriculum’s impact on their students. Marie adopted *Healing Earth* as the primary curriculum for her elective course,
replacing a more traditional environmental science high school textbook. Students accessed *Healing Earth* easily through school-provided Chromebook devices, and the transition was relatively smooth. The only challenge Marie described in adopting *Healing Earth* as her primary textbook was that she had to put a lot of time into creating supplemental materials, such as quizzes and reading guides, which helped her to differentiate for the “wide span of abilities in the classroom.” James, meanwhile, could not fully adopt *Healing Earth* as his course curriculum because it did not contain all the science content required by AP standards. As a supplement to a more conventional environmental science textbook, James used *Healing Earth*’s case studies to explore real-world manifestations of ecological issues, while *Healing Earth*’s ethical framework served “as a backdrop to everything.” Marie and James both received enthusiastic responses to *Healing Earth* from students, their families, and school leadership. Parents embraced *Healing Earth* because they saw that their children were learning and engaged. School leaders, in turn, were highly supportive, as both administrations evidently placed high importance on parent feedback. Meanwhile, the university-level educators described *Healing Earth*’s relevance to students from various academic majors. For the interdisciplinary research project in Iñigo’s Ignatian Foundations course, students explored an ecological issue addressed in *Healing Earth* “from the perspective of their major” and reflected on how they could “contribute to the common good, specifically regarding the environment,” from within their chosen career path. Iñigo provided examples of ways that students connected *Healing Earth* to various fields of study including public health, business, and law. Similarly, Paul and Wondama described how
students connected *Healing Earth* to their various academic majors through local case studies.

*Healing Earth*'s relevance to students’ lives is unmistakable as the ecological crisis is bound to have a drastic impact on their futures. Ñigo described his students as already deeply engaged with issues of environmental sustainability and justice when they began the Ignatian Foundations course, although they were less interested in other course content such as Jesuit history and theology. Ñigo’s use of *Healing Earth* and *Laudato Si’*, then, helped him to generate broader engagement in the course by drawing on students’ “common ground” of “care for the Earth” and “social concerns,” which led them to become more “invested in the course” overall. Paul and Wondama also told me that many of their students had interest and concern in ecological issues before beginning their course, and they believed these concerns were a significant reason for the consistently high enrollment in Healing Earth. All five interview participants described students’ highly emotional responses to learning about the ecological crisis, using words such as “fear,” “anger,” “sad,” “gloomy,” “despondent,” “heart-wrenching,” and “depressing.” At the same time, participants used words such as “peace,” “beautiful,” “wonderful,” and “blessing” in response to insights and encounters with nature. Given the considerable awareness and anxiety many young people already have regarding the ecological crisis, educators have the responsibility not only to impart knowledge and understanding but to cultivate love for Earth, hope for our future, and commitment to action.

According to the interviews, case studies tend to be *Healing Earth*’s most engaging component. In Marie’s words, “it’s the story that gets the excitement and the
interest.” For teachers who are not able to fully adopt *Healing Earth* as their curriculum, Marie still recommends using the case studies as “starter stories” to “get [students] more interested in the subject matter.” This is one way James uses *Healing Earth*, as with the example he described of generating students’ interest in a unit on biodiversity and natural resources by reading and discussing the “Kakadu and the Mirrar” case study (IJEP, 2020a). Participants described students as particularly engaged when exploring ways that *Healing Earth*’s content applies to their own geographic regions and communities. For example, James described connections to issues of nuclear contamination in the city where he teaches, and Marie discussed local issues of water contamination with her students. Most striking of all were examples Paul and Wondama provided of local case studies their students explored, such as the “conflict about the development of Komodo National Park,” and local service-learning projects with communities involved in projects such as organic farming, forestation, and water conservation.

No matter how great a written curriculum may be, it requires skilled and committed teachers to bring it to life. The five educators I interviewed for this study expressed enthusiasm for *Healing Earth* and, more importantly, extraordinary passion and dedication to teaching their students to care for Earth. This engagement on the part of the educators themselves was unquestionably a factor in the students’ engagement with the curriculum. Marie articulated this finding in a particularly memorable way when she spoke about how *Healing Earth* reignited her enthusiasm for teaching in the final years of her career, which led her “to spend more time on it … so that I could bring that richness to the class.” This enthusiasm was so contagious that even after they had finished the
environmental science course, Marie’s former students would find her in the hallways to revisit *Healing Earth*-related discussions.

**Spiritual Ecology in a Catholic Context**

A common factor across this study’s cases is that all are set in Catholic educational institutions, which significantly influenced participants’ experiences teaching with *Healing Earth*. My findings suggest that Catholic schools and universities can be favorable environments for educators and students to explore the spiritual and ethical components of *Healing Earth*, though there is also potential for Catholic institutions to have a restrictive influence on ecological teaching and learning.

In all cases, the religious educational contexts appear to have been conducive to spiritual and ethical reflection, including with students who were not Catholic. According to Marie, praying regularly with her students fostered deeper relationships than she had been able to achieve in secular education settings where she had previously taught. Every interview participant spoke of conversations with students in which ecological concepts intersected with spirituality. When teaching the Water unit, for example, Wondama drew connections to religious practices of various faiths: baptism in Christianity, wudu in Islam, and cleansing in the Ganga River for Hindus. Íñigo, James, and Marie all discussed with students, in different ways, how experiences of nature can bring us closer to God.

As head of the Catholic church, Pope Francis directly influences the practices and principles of Catholic institutions. Both James and Marie told me that Pope Francis’s ecological messaging was a significant factor in their administrations’ support of their use
of Healing Earth in the environmental science courses. As James explained, “if anybody would disagree” with the content of his AP Environmental Science class, he could “pull the Pope card” by demonstrating that what he was teaching was consistent with Pope Francis’s, and therefore the Church’s, teachings. The headmaster of Marie’s school – a former Protestant who had converted to Catholicism – had read Laudato Si’ in its entirety and was pleased that Marie was putting its teachings into action through her environmental science course. In Iñigo’s case, meanwhile, Pope Francis’s Jesuit background helped to make Healing Earth appropriate for inclusion alongside Laudato Si’ in his Ignatian Foundations theology course. Iñigo told me that his students were “positively surprised” to learn about Pope Francis’s strong messaging on social and ecological issues, and that this made them more open to the content of the Ignatian Foundations course overall.

My conversations with these educators convinced me that religious education contexts offered distinct advantages for the exploration of Healing Earth’s spiritual and ethical dimensions. While I hope to see Healing Earth taught more widely beyond Catholic education, some aspects of Healing Earth are certain to be more difficult to teach in secular education systems. I discussed this with Marie, who told me she had showed Healing Earth to a public school teacher friend who “was having trouble getting the kids to understand why we should value nature just for itself.” Marie’s friend found it “really helpful just to have that terminology” of intrinsic and instrumental value. However, this teacher did not feel comfortable using much of Healing Earth in her public
school, because she was afraid that the references to “creation” and a “creator” could cause “a lot of issues with their administration.”

Catholic schools can be restrictive in their own ways however, as Marie and James have both experienced at times. Marie’s headmaster had been resistant to her earlier attempts to initiate pro-ecological teaching and activism at St. Mary’s, before being convinced by reading *Laudato Si’*. James also told me that he is “careful” not to openly express his opinions on issues such as birth control, because “the Church teachings are first and foremost, and you kind of have to stick by those.” There was one instance in which James was not allowed to give his students tickets to a climate summit at a local university because one of the featured speakers had expressed opinions that did not align with Church teachings. While Marie’s and James’s school administrations were still overwhelmingly supportive of their ecological teaching overall, we can assume that not all Catholic institutions would be as amenable to *Healing Earth*’s approach to ecological issues.

**Perceiving Earth’s Intrinsic Value**

*Healing Earth*’s ethical framework is founded on three precepts: “that nature has intrinsic value,” “that nature has instrumental value,” and “the value of environmental sustainability” (IJEP, 2020e, paras. 24-26). While each is of paramount importance, in this study I place the most emphasis on intrinsic value, which is the least acknowledged and understood of the three precepts. All five interview participants told me that their students initially struggled with the concept, or at least with the terminology, of intrinsic
value as distinguished from instrumental value. They described using both spiritual and experiential approaches to impart this understanding to students.

Several interview participants described interactions with students in which they discussed Earth’s intrinsic value in spiritual terms. Marie told me about reading poetry with her students in which the authors “[related] their experience in nature to their experience of the Almighty.” Paul and Wondama connected the concept of intrinsic value to the belief that Earth is God’s creation. In Wondama’s words, “everything that God created has its own purpose. Why God created a rock, it has purpose…. It has intrinsic value.” Similarly, Paul explained that “created things have this kind of intrinsic value, known only to the Creator, but we have to appreciate it.” James suggested that, even though the students were unfamiliar with the terminology of instrumental and intrinsic value, they had an innate understanding of these concepts: “It’s stuff that they already have a pretty good feel for and realize that creation is a gift, and it’s good just because it is. It doesn’t have to do anything for you. Just being there is gift enough.”

Participants also described fostering their students’ understanding of Earth’s intrinsic value through encounters with nature. Marie would take her students to a nature park and have them “sit silently and close their eyes … to experience nature, the world around us and what does it do for us and how it lifts our spirits.” Iñigo would “constantly encourage them to get in touch with nature … walk in the park, for instance,” and to care for plants at home to “see the growing and dying process of the plant, to help us get in tune with nature.” James has assigned students to care for plants at home as well as helping to tend the school garden.
An interesting connection arose between my conversations with James and Iñigo, both of whom described students gaining understanding of nature’s intrinsic value through mindful enjoyment of food. James had his students contribute recipes to a class cookbook and take photographs documenting their preparation and sharing of meals with friends or family. Iñigo had students bring food with cultural significance to share with the rest of the class, “[encouraging] them to sit in the moment and stay in the moment and enjoy the food, and the company, and … the different textures, flavors of food.” It is notable that, as the fuel that keeps us alive, food is a clear-cut example of nature’s instrumental value; yet, to James’s and Iñigo’s students, food revealed the meaning of intrinsic value. This demonstrates, I believe, that Earth’s intrinsic and instrumental values are not separate at all. The purpose for recognizing Earth’s intrinsic value is not to distinguish it from instrumental value, but to learn to cherish Earth’s “intrinsic dignity” (Francis, 2015a, §115) while understanding that we are part of and utterly dependent upon Earth. The alternative path of “excessive anthropocentrism” (Francis, 2015a, §116) that sees only instrumental value is spiritually hollow, morally abhorrent, and offers bleak prospects for our future.

**Generating Hope**

The authors of *Healing Earth* believe that “it is vitally important that we help our students imagine positive possibilities for the world they are inheriting at the same time as they are learning environmental science” (IJEP, 2020h, para. 8). Amid the ominous trajectory of our present ecological situation, my interview participants and their students generated authentic hope in an ecologically healthy and just future.
It is not easy to balance truth with hope in teaching ecology. Íñigo described “a sense of anger, disappointment” in his students “for what we have done, especially older generations abusing Earth.” Paul’s students, similarly, would express “gloomy” feelings about our ecological situation, and James’s students would sometimes leave class feeling “somewhat despondent about the way things are, because we’ve messed things up big time.” In every case, however, interview participants suggested that their responsibility as educators was to help students find hope to overcome ecological despair. This hope serves an important purpose beyond the emotional well-being of students. As Paul explained, “this will be a positive energy for us to produce a transformation process in dealing with the ecological crisis.”

Marie developed the “heroes of the environment” project as an attempt to nourish students’ hope after they told her it was becoming “too depressing” to learn about the ecological crisis. While the project did not change the facts that had so upset her students, it helped them to shift their perspective. Through this new vantage point, students saw their own potential to be heroes, rather than victims or bystanders, in the face of ecological crisis, allied with the efforts of other ecological heroes across Earth.

As much as participants had needed to provide their students with hopeful perspectives, students also generated hope in their teachers. Paul struggles with “feelings of fear” over the ecological crisis, he told me, but he finds “spiritual consolation” in experiencing “a kind of solidarity” with his students in their commitment to take “real action against global climate change.” Wondama, similarly, told me he is heartened to see that his students “want to collaborate, involve, engage more in volunteer activities.”
James also told me that he is “hopeful mostly because of [my students], because … I know that they and others like them are capable of getting out in the world and being seen and being heard and making a difference.”

**Taking Action**

*Taking action* is a core component of *Healing Earth* based on the understanding that “The wisest and most effective responses to Earth’s ecological challenges will come from people who are scientifically literate, ethically grounded, spiritually aware, and motivated to act” (IJEP, 2020h, para. 6). All my interview participants expressed commitment to the goal of pro-ecological action. This commitment manifested in different ways, balancing opportunities for action in the present with reflection on their motivation to act in the future.

The most striking examples of taking action were the service-learning activities that Paul led in a previous semester, when the Healing Earth class “decided to provide help” to local communities with projects related to ecological issues addressed in *Healing Earth* such as organic farming methods, irrigation infrastructure, and forestation. Wondama explained, however, that it is “challenging” to “[implement] actions in communities or real-life conditions,” especially with limited time and resources available. Since Paul determined that it was not feasible to continue facilitating service-learning projects on that scale, Paul and Wondama have sought to nurture their students’ motivation for action through the local case study projects, in which they ask students to reflect on “the way you manage your life, your career later, your contribution to the country.” Students also put what they have learned from the Healing Earth course into
action, Wondama told me, through personal actions such as conserving water and electricity.

Similarly, Iñigo told me he observed a “change in attitudes” in his students, which he described as “a profound sense of commitment, a call to action.” This commitment manifested in immediate ways through lifestyle changes such as their “use of energy” and “use of water,” but their commitment to act for broader change in the future was most important. “Some plan to share what they did in class about the environment, at home, in their communities, at school, and many of them were thinking of applying these concepts and principles in their careers,” Iñigo explained. “So it was more like a, yes, now, but more in the future, more systematically.”

Both high school teachers found ways to nurture students’ motivation toward action in combination with their academic learning. Marie was proud of her accomplishment of “[starting] a Green Steps program” at St. Mary’s, which “finally got recognized as a Green Steps school.” However, Marie was “very sad” to tell me that “the year after I left nobody took it over.” For James, “getting [students] engaged in the garden” was an important form of action. At the same time, he encouraged students to think about how change can happen systemically. For example, in election years James had his students research political candidates’ “philosophies or priorities on areas related to environmental science.” He also said that some of his students had taken action through extracurricular groups and mission projects. Still, James knew the greatest impact of his environmental science teaching would be students “actively making changes” through “the work that they go into later.”
Despite their universal commitment to the end goal of taking action, it is notable that, in most cases, my participants reported relatively limited examples of taking immediate action with their students. This finding is consistent with my survey data, where taking action was one of the less commonly reported components for respondents to have used\textsuperscript{10}. Several factors limited participants’ opportunities to take action, including restrictive institutional policies and constraints in time and resources. This should not be understood as a shortcoming of their educational accomplishments, however. According to Healing Earth, “The wisest and most effective responses to Earth’s ecological challenges will come from people who are scientifically literate, ethically grounded, spiritually aware, and motivated to act” (IJEP, 2020h, para. 6). Helping students to become motivated to act while cultivating scientific literacy, ethical grounding, and spiritual awareness, is more important—especially for younger students—than achieving immediate outcomes through action. Healing Earth’s framework for taking action calls for us to cultivate two aspects in our students: benevolence and beneficence (IJEP, 2020e). Beneficence, or “actions that make the Earth well” (para. 55), can only be achieved with benevolence, or love for Earth and our fellow beings. It will not benefit our students or our world to push them toward beneficence before developing their benevolence. Our responsibility as educators is not to use students as instruments for the changes we want to see, but to cultivate love, understandings, and abilities that will guide, empower, and sustain them to act for a better world in their own time.

\textsuperscript{10} According to survey responses, the components of Healing Earth that participants reported using most commonly were case studies, science, ethics, and spirituality. The least commonly reported components were taking action, reflection questions, exploration, and additional resources.
Suggestions for Further Research

There is currently such a lack of research into integral ecology education that I believe any further research in this area would be of great value. Each case that I studied generated unique and meaningful data, and other case studies of teachers using Healing Earth would undoubtedly offer valuable findings beyond what I have discovered here.

I believe that participatory action research and self-study by educators teaching with Healing Earth would be particularly valuable methodologies for advancing this area of research. I have always believed that we should value practitioner knowledge in education more highly (Chevalier & Buckles, 2019; Cochran-Smith & Lytle, 2015; Samaras, 2011), and this is especially true for the Healing Earth project, which is grounded in the principle that all people, not just those in positions of power, are important in shaping our future. As I discuss in the following section, I hope to see a growing network of Healing Earth educators across the globe, and self-study and participatory action could have a vital role in the development and sharing of knowledge and practice throughout the Healing Earth community.

Finally, I strongly suggest that future research on Healing Earth include the voices of students through any combination of surveys, interviews, focus groups, student work, and classroom observations. The value of curriculum is in the impact it has on its learners. It is essential that we learn about students’ experiences of the curriculum to guide our decisions about future directions for this work, and to remind us why we do this work to begin with.
Recommendations

Here I offer six practical recommendations based on the findings of this study to enhance and expand Healing Earth’s impact. First, I recommend continuing the work of translating Healing Earth into as many languages as possible. Next, I recommend that IJEP develop an adapted version (or versions) of Healing Earth for younger learners. Based on participants’ feedback, I recommend developing more practical instructional materials to facilitate the use of Healing Earth in classrooms. Next, I recommend promoting the use of Healing Earth to a more diverse array of educational contexts and disciplines, including in non-Catholic institutions and in schools of education. In connection to the emergent theme of community and collaboration, I recommend cultivating a collaborative global community of Healing Earth educators through professional development and networking forums. Finally, I recommend promoting cross-faculty collaboration within institutions where Healing Earth is taught. While I intend for these recommendations to inform the work of the Healing Earth team specifically, some of these recommendations also have broader implications for education policy and practice.

Continue Translation into Multiple Languages

I understand that this is already a priority for IJEP, but I still want to emphasize the value of making Healing Earth available in as many languages as possible to increase the project’s global reach and impact. Paul spent a year working on the recently completed Indonesian translation of Healing Earth, the importance of which Paul and Wondama spoke of frequently. Two survey participants also commented on the need for
translations, one requesting translation into Polish and the other expressing gratitude in advance for the Spanish translation that would soon be available.

**Adapt for Younger Learners**

While *Healing Earth* is effective for use in diverse educational contexts at the secondary and post-secondary levels, younger students would also benefit from *Healing Earth*’s integrated, spiritually and ethically grounded approach to ecological study. I recommend that IJEP work to develop alternate versions of *Healing Earth* for the academic and developmental needs of elementary and middle school students. Paul’s current work to adapt *Healing Earth* for Indonesian high schools will likely be useful to these efforts.

**Expand Teacher Resources**

In an interview and in multiple survey responses, suggestions were made to expand *Healing Earth*’s teacher materials. Specifically, participants requested reading comprehension guides, tests and quizzes, review worksheets, and resources for differentiating instruction. Marie told me she believed more teachers would choose to use *Healing Earth* if these types of support materials were available.

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11 The *Healing Earth* website includes a Teacher Materials section (IJEP, 2020h) that provides resources and suggestions for teaching each unit. These include learning objectives, discussion questions, summative reflection questions, debate ideas, and suggested projects related to each unit topic. However, at the time of my writing, the Teacher Materials do not include ready-to-use materials such as tests, quizzes, or reading comprehension questionnaires. (There are several links to outside resources, including online lab materials hosted by a for-profit curriculum company. Some of the links did not work when I tried them. I found the resources that worked to be a poor match for the quality and depth of *Healing Earth*’s original materials).
Cultivate Community of Educators and Learners

As I discuss above under the theme “Community and Collaboration,” participants frequently expressed a desire to connect with likeminded educators involved in the Healing Earth project. Additionally, a high school science teacher who completed the survey but did not volunteer to participate in interviews commented that, although they were no longer using Healing Earth, “I would have probably kept using it if there was more [professional development] available. I attended a one day workshop and I would have liked more on-going [professional development].” I strongly recommend, therefore, that IJEP work to increase opportunities for networking, collaboration, and professional development among Healing Earth educators, and also to provide opportunities for students to interact with each other in their studies of Healing Earth.

Promote More Diverse Applications of Healing Earth

I encourage the Healing Earth team to expand its outreach efforts to promote the use of Healing Earth in more diverse educational contexts and disciplines. Healing Earth’s content and approach are relevant to all learners regardless of their religious background, and I recommend promoting the curriculum’s use in secular and non-Catholic religious institutions. Furthermore, Healing Earth’s ethical framework and case studies could be applied in a broader array of subjects and disciplines, including economics, political science, health sciences, and anthropology. I also recommend that Healing Earth be taught in schools of education to familiarize teacher candidates with the integral ecology perspective and allow them to consider using Healing Earth in their future teaching.
Promote Cross-faculty Collaboration

This recommendation is closely related to the two recommendations above. *Healing Earth* could have a greater impact if more faculty members were involved in collaboratively teaching the curriculum within their institutions. This collaboration would be consistent with the transdisciplinary aims of *Healing Earth*, while the teaching would be enhanced with greater diversity of knowledge and experience. The inclusion of more faculty would increase the capacity for initiatives such as service-learning, which my findings indicate offer immense reward but can be prohibitively demanding of the teachers. I also believe that engaging more faculty with the ideas and perspective of *Healing Earth* would have rippling benefits throughout and beyond these institutions. Even when collaborative teaching may not be immediately feasible, various classes could apply *Healing Earth*’s ethical framework to cultivate cohesion across the curriculum.

Final Thoughts

“May our struggles and our concern for this planet never take away the joy of our hope.” (Francis, 2015a, §244)

As Bill McKibben (2019) observes, the ecological crisis “seems so big, and we seem so small, that it’s hard to imagine that we can make a difference” (para. 4). This sense of individual powerlessness can lead to despair, which hinders us from taking action. Hope is needed to overcome this despair: hope that our actions matter, and that a more just and sustainable world is possible. This hope has grown in me through this dissertation process.
I experienced a shift in my thinking over the course of my data collection and analysis. In my initial approach, I viewed each participant’s experience as a self-contained case, inadvertently reflecting the individualist culture I was born into. As I analyzed my participants’ accounts, however, I came to understand their work as efforts within a collective movement to heal Earth through education. Through this shift in my thinking, I have gained deeper appreciation of Healing Earth’s theory of change, which is based on a vision of hope:

The overall goal of Healing Earth is to help all of us grow into integral ecologists, people from every walk of life and region of the world who dare to imagine a healed Earth and are willing to put their hands, hearts, and minds to the task.

(IJEP, 2020j, para. 7)

I believe integral ecology can be an antidote to despondency. The feeling that we are too small and powerless to make a difference is rooted in the myth of our separateness from Earth. In overcoming this illusion of separateness, we come to understand that all our actions and inactions matter.

Pope Francis (2015a) concludes Laudato Si’ with “A prayer for our earth,” in which he asks that God “teach us to contemplate you / in the beauty of the universe, / for all things speak of you” (§246). Francis’s veneration of Earth contrasts powerfully with the prevailing utilitarian framework that has failed to inspire sufficient action even in the face of existential crisis. My hope is that, through the collective efforts of people like Wondama, Paul, Iñigo, James, and Marie, we will find ways to heal Earth based on love for “Earth's astonishing diversity, intricacy, and beauty” (IJEP, 2020e, para. 1).
APPENDIX A

SURVEY QUESTIONNAIRE
SURVEY INSTRUCTION

Informed Consent

Welcome to this survey on use of the Healing Earth curriculum in schools and universities.

CONSENT TO PARTICIPATE IN RESEARCH

Project Title: Integral Ecology Dissertation Project

Researcher: Caleb Steindam

Faculty Sponsor: Charles Tocci

Introduction:

You are being asked to take part in a research study being conducted by Caleb Steindam for a dissertation under the supervision of Charles Tocci in the School of Education at Loyola University of Chicago. You are being asked to participate because you have been identified as an educator who has used Healing Earth as a resource for your teaching. Please read this
form carefully and ask any questions you may have before deciding whether to participate in the study.

**Purpose:**

The purpose of this research is to learn how educators make use of *Healing Earth* as a curriculum resource, with the aim of illuminating possibilities of future directions in integral ecology education.

**Procedures:**

If you agree to be in the study, you will be asked to complete the following online survey. The survey should take you around 15 minutes to complete. You will be asked questions about your teaching context and your experience using *Healing Earth*. Throughout the survey, you will have opportunities to offer comments, clarifications, and any further information that might be helpful to my research. You are free to skip any question you do not wish to answer.

**Risks/Benefits:**

There are no foreseeable risks or discomforts involved in this research beyond those experienced in everyday life. There are no direct benefits for participation, but this research is intended to benefit to society by sharing ideas for educational responses to our ecological crisis.
Confidentiality:

Please be assured that your identity will remain anonymous and your responses will be kept confidential. Your responses might be included in the dissertation report or other published work derived from this research, but no identifying information about you will be shared. Survey data will be stored only on the Researcher’s personal computer with password protection. Any information provided in your responses that could be used to identify you, will be removed from the data set and stored separately from the other data.

Voluntary Participation:

Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free not to answer any question or to withdraw from participation at any time without penalty.

Contacts and Questions:

If you have questions about this research study, please feel free to contact the researcher Caleb Steindam at csteindam@luc.edu or the faculty sponsor Charles Tocci at ctocci@luc.edu. If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

Statement of Consent:
By clicking the button below, you indicate that you have read the information provided above, have had an opportunity to ask questions, and agree to participate in this research study.

☐ I consent, begin the study
☐ I do not consent, I do not wish to participate

**Block 2**

Have you used *Healing Earth* as a resource in your teaching?

☐ Yes, and I still use it.
☐ Yes, but I'm no longer using it.
☐ No, but I plan to use it in the future.
☐ No, and I have no plans to use it.

How have you used *Healing Earth* in your teaching?

☐ As the main source of curriculum material.
☐ As a major curriculum resource along with other materials.
☐ As an occasional supplement to my curriculum
☐ As a source of ideas or inspiration (I have not used Healing Earth materials in my teaching)
Would you like to further explain your answers above?

What is your job title?

If you used Healing Earth in the past when you held a different role, what was your job title then?

What type of institution do you work in?
Which of the following best describes the religious affiliation of your school/institution?

☐ Jesuit
☐ Catholic, non-Jesuit
☐ Christian, non-Catholic
☐ religious, non-Christian
☐ secular / no religious affiliation

Where do you teach?

☐ In the US
☐ A country that is not the US (optional to specify below)

Is there anything else that would be useful to know about your school and classroom context that influences how you have
used *Healing Earth*?

Please list the name(s) of any course(s) you have used *Healing Earth* for, in any capacity.

What was the duration of the course(s) you have used *Healing Earth* for? (E.g., "semester-long" or "whole-year.")
If you have used *Healing Earth* for multiple courses, please specify for each.

How frequently did the course(s) meet, and for how long? (E.g., "90-minute class, 3x per week")
If you have used *Healing Earth* for multiple courses, please specify for each.
Which section(s) of *Healing Earth* have you used (at any time)? Please check all that apply.

- [ ] Introduction
- [ ] Biodiversity
- [ ] Natural Resources
- [ ] Energy
- [ ] Water
- [ ] Food
- [ ] Global Climate Change
- [ ] Synthesis

Is there anything you would like to add about how or why you chose to use these sections?

What components of *Healing Earth* have been useful for your teaching? Select all that apply.
Is there anything you would like to add about the components you found most useful?

How well does (or did) *Healing Earth* meet your teaching needs?

- Very well
- Moderately well
- Slightly well
- Not well at all
How would you describe the teaching needs of the specific course(s) you have used *Healing Earth* for?

In what ways was *Healing Earth* useful and applicable to your teaching needs?

How could *Healing Earth* have been more useful and applicable to your teaching needs?
The section below refers to all ecology-related teaching you have done (not just in relation to the Healing Earth curriculum). The term "ecology" here may be understood to mean any studies related to environmental topics.

When teaching ecology-related content, how often do you...

<table>
<thead>
<tr>
<th></th>
<th>Every lesson</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>attempt to connect ecology with other subjects or disciplines ACROSS THE CURRICULUM?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>attempt to connect ecology with RELIGION or SPIRITUALITY?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>attempt to connect ecology with discussion of POLITICS?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>attempt to connect ecology with issues of SOCIAL JUSTICE?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Question</td>
<td>Every lesson</td>
<td>Frequently</td>
<td>Sometimes</td>
<td>Rarely</td>
<td>Never</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------</td>
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<td>-------</td>
</tr>
<tr>
<td>attempt to apply ETHICAL ANALYSIS to ecology?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>attempt to provide opportunities for students to TAKE ACTION?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>attempt to instill the belief that nature has INTRINSIC VALUE?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>attempt to help students see THEMSELVES as PART OF NATURE?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Is there anything you would like to explain about any of your answers above?

Is there anything else that is important to know about your teaching of ecology or use of *Healing Earth* that has not been
covered in this survey?

A later phase of this study will consist of interviews to further explore participants’ experiences with Healing Earth, as well as other teaching experiences and perspectives on the role of education in addressing the ecological issues.

**If you are interested in participating in interviews, please enter your email address and the researcher will contact you at a later time.**

Do not enter your email address if you do not wish to be contacted about participating in interviews.

You may contact the researcher, Caleb Steindam, directly by email at csteindam@luc.edu.
APPENDIX B

GUIDING INTERVIEW QUESTIONS
GUIDING INTERVIEW QUESTIONS

First Interview:

● Tell me about the artifact you brought, and what it means to you.

● Tell me about yourself and your teaching context.
  ○ Describe the institution you work in.
    ■ Student demographics, religious affiliation, educational philosophy, organizational structure, etc.
  ○ What is your position? What courses do you teach?
  ○ What prior experience do you have related to education and/or ecology?
  ○ What has motivated you to follow this career path as an educator?
  ○ What else can you tell me about yourself that is important to your teaching? (E.g., background and interests; religion/spirituality; ethical, political, or social beliefs)

● Describe your experience teaching with Healing Earth.
  ○ How did you first learn about Healing Earth?
  ○ In what specific ways have you used Healing Earth in your teaching?
    ■ With which courses have you used Healing Earth?
    ■ What specific sections or components of Healing Earth have you used?
    ■ In what ways have you used Healing Earth as a resource or guide in your teaching?
  ○ Describe a specific lesson in which you used Healing Earth.
Did the lesson go as planned? Did anything surprise you? Explain.

How did your students respond/engage? (Describe specific observations, student work, comments, etc.)

What would you say were the biggest successes?

What were some challenges?

(I will ask participants to describe other lessons if time allows.)

- How does Healing Earth align (or not) with your educational goals?
- Based on your experience, what are the strengths of Healing Earth?
- In what ways could Healing Earth better fit your needs? What changes would you like to see?

Based on your observations, how did students experience Healing Earth?

- What did students say during these learning experiences? What questions did they ask?
- What notable examples of student work do you remember?
- Can you think of any examples of students taking action in response to this learning?

What opportunities and barriers have you encountered in your efforts to teach Healing Earth (or otherwise incorporate the integral ecology principles)?

- How did Healing Earth align (or not) with the curriculum you were required to teach (standards, assessments, etc.)?
- What forms of institutional support and/or resistance did you encounter in relation to your teaching efforts (i.e., from administrators or supervisors)?
○ What support and or resistance did you encounter from other stakeholders (students, families, colleagues, etc.) in relation to these teaching approaches?

● In the survey you completed last year, I asked how often you have attempted to incorporate various principles of integral ecology. Tell me about a time when you’ve attempted to incorporate an integral ecology approach to your teaching, in any of the following ways:

○ Help students to see all of Earth, including themselves, as interconnected.
○ Teach that nature has intrinsic as well as instrumental value.
○ Connect ecology with religion or spirituality.
○ Integrate ecology teaching across the curriculum.
○ Address social justice issues in connection with ecology.
○ Address political issues in connection to ecology teaching.
○ Provide opportunities for students to take action in response to ecological issues.
○ Apply ethical frameworks to ecological issues.

**Second Interview**

● Please respond to my initial analysis of our previous interview.

○ What do you agree with or disagree with?
○ What do you find interesting or surprising in my analysis?
○ What would you like to add?

● What have you learned from teaching with *Healing Earth*?
○ What lessons have you learned that you would like to share with other educators?

○ What changes in educational policy or institutional structure would you like to see to better educate students for ecological awareness?

● How can Healing Earth have a greater impact on education globally? What other ways can we work toward the goals of Healing Earth?

● How do you view the role of your teaching, and of education more broadly, in addressing the ecological crisis?

● What else is important for me to know that you haven't been able to mention yet?
APPENDIX C

STATEMENT OF INFORMED CONSENT
PROJECT TITLE:

HEALING EARTH IN A TIME OF CRISIS:
CURRICULUM FOR INTEGRAL ECOLOGY

You are being asked to participate in a dissertation research project being conducted by Caleb Steindam at Loyola University Chicago, School of Education, under the supervision of Dr. Charles Tocci.

The purpose of this research is to learn about educators’ experiences teaching with Healing Earth curriculum resources, with the aim of exploring the possibilities of an integral ecology approach in education. The researcher will be interviewing approximately six educators who have taught with Healing Earth. Each interview will be conducted on Zoom. The first interview will last for approximately one hour (maximum 75 minutes), and the second interview will last for approximately 30 to 45 minutes.

If you agree to participate, you will be asked questions about your background, your experiences teaching with Healing Earth and other related experiences, and about your interpretations of these experiences. Your interview will be audio recorded on Zoom to the researcher’s personal computer under password protection. The researcher will transcribe the interview recording soon after completing the interview. In the transcription, the participant's name will be replaced with a pseudonym, and any other potentially identifiable information will be removed or anonymized, so that no identifying information is present in the transcription documents. When the transcription is complete, within two weeks of conducting the interview, the researcher will save the interview recordings to a password-protected external hard drive. At the time of
transferring each audio file to an external hard drive, the researcher will permanently delete the recording from the personal computer. The researcher will keep the external hard drive with the interview recordings locked in the researcher’s personal desk for no more than five years, in case there is a need to verify research data. You will also be asked to share an artifact that is meaningful to you during the first interview. An image of this artifact may be included in writings, publications or presentations of the study’s findings, but no identifying information will be included in this image. (I will blur out faces and any other potentially identifiable parts of the image.) Your name and identity will not be used in the work; pseudonyms will be used in all writings, publications or presentations to further protect your confidentiality.

The interview is completely voluntary and you may refuse to answer any questions at any time or withdraw from participation completely without penalty. Furthermore, you may interrupt to ask questions concerning the research or research procedures at any time.

The study is designed to learn from your experiences and perspectives and not to benefit you personally. If you agree to participate, you will be adding to the body of knowledge about integral ecology education.

The researcher will make a $50 donation to charity of your choice as a gesture of appreciation for your participation in this research. You may inform the researcher (Caleb Steindam, csteindam@luc.edu) of the charity you choose, and he will send you confirmation of the donation.
If you have any questions about this research study, you may contact the researcher, Caleb Steindam of Loyola University Chicago at csteindam@luc.edu or the researcher’s faculty advisor, Dr. Charles Tocci of Loyola University at ctocci@luc.edu. If you have questions about your rights as a research participant, you may contact Loyola University’s Research Compliance Manager at (773) 508-2689.
APPENDIX D

POSTERS OF HEALING EARTH’S ETHICAL FRAMEWORK
Moral Goals

- Protect and preserve biological diversity
- Decrease damage done to nature and humans by extractive industries
- Support sustainable and renewable energy sources and make them available to all people
- Conserve and protect water and its availability to all people and forms of life
- Make healthy food available to all people
- Reduce human-induced global climate change

Moral Principles

- Care for Creation
- Human dignity and rights
- Common good
- Universal destination of goods
- Preferential option for the poor
- Subsidiarity

Moral Virtues

- GRATITUDE for the existence, beauty, and resources of the natural world
- COURAGE to live sustainably and advocate for the good of the natural world
- JUSTICE in preserving, restoring, and distributing the goods of the natural world
- PRUDENCE in decisions that affect the health of the natural world
- TEMPERANCE in consuming the goods of the natural world
- A LOVING GENEROSITY in reaching out to the needs of persons, society, and the natural world with a spirit of solidarity and sharing

REFERENCE LIST


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VITA

Caleb Steindam grew up in three towns in Ohio with his parents, Harold and Jenny, and his siblings, Sara and Nevin. He went to Eckerd College in St. Petersburg, Florida, for his bachelor’s degree in Spanish with philosophy and sociology minors, and he later earned his master’s in Spanish Education at Lehman College, City University of New York, in The Bronx, New York. He began his EdD at Loyola University Chicago in 2012 and took far too long to finish. Caleb now lives with his fiancée, Stephanie, and their cat, Shere Khan, above the Rocky River valley near Cleveland, Ohio.

Caleb has been an educator for nearly two decades. He has taught at the elementary, high school, and university levels in the US, Honduras, China, and Sierra Leone. Caleb has also worked as a curriculum developer for the Jesuit Refugee Service; as a garden educator, service-learning facilitator, and after-school coordinator for youth development organizations; and as director of an international school in The Gambia.

Caleb enjoys pottery, sports, nature, and being with the people he loves.
The dissertation submitted by Caleb Steindam has been read and approved by the following committee:

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Loyola University Chicago

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