Illustration by author

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Culture, Power and Sustainability (30 ECTS)

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Abstract

Aface the crashing wave of the global climate crisis, humans are struggling to stay afloat. Building a raft of sustainable environmental ethics whilst swimming in the dark waters of unsustainable "modernity" requires a herculean effort. And yet, here we are. The Education for Sustainable Development (ESD) curriculum of Yakushima municipality in Japan is doing its localised part to gather the wood, tie the planks, and fashion the sail by refining its environmental education curriculum into a radical place-based pedagogy. But building a raft requires more than technical knowledge—it also requires artistry. Using participatory art and ethnography-leaning qualitative methods, this thesis investigated Yakushima High School students' vision of this raft and its oceanic range—that is, it investigated the students' conceptions of glocality within the context of sustainability. Findings materialised into and from an artistic boundary object expressing four key conceptions: *Nature as Lowest Common Denominator, Water as Connector, The Preeminence of Trash and Waste,* and *Facing Reality, Responsibility, and Hope*. This thesis concludes that artistic methods have great value in catalysing dialogue and knowledge production on topics of glocality and sustainability, especially when such methods are explicitly informed by the feminist and decolonial emphasis on situated narrative of subaltern groups—such as rural Yakushima's students—in order to construct a sustainable political ecology, as Yakushima's ESD hopes to do. May our raft be humbly grand, and sail us far into a sustainable future.

Keywords: Human Ecology; Glocality; Sustainability; Sense of Place; Participatory Art; Boundary Object; Japan

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To my family, thank you for raising me as a nature child: one of the tropics and the desert alike, who belongs to this whole entire valiant Earth. It's the most precious gift I have ever received.

Lastly, to Yakushima, my soul-magnet home of homes, a place full of people from whom I have been the recipient of oh so very much in this singular human existence: Thank you; I love you; I can only hope to give back one ten-thousandth as much of the goodness as you continue to give me.

♡ Mahalo

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List of Abbreviations

BOE	Board of Education
ESD	Education for Sustainable Development
MEXT	The Japanese Ministry of Education, Culture, Sports, Science, and Technology
SDGs	Sustainable Development Goals
UNESCO	United Nations Educational, Scientific, and Cultural Organisation

1. Brushes, Palette, Easel: Introduction

1.1 Inspiration

Date: April 5th, 2018. Location: Yakushima, Japan.

It's the last precious days of the spring holiday, the sun is beginning to sink down behind the mountains, and my students and I are walking through the forest back to town from our afternoon of goofing off and lounging around at *shirahama*, the local river swimming hole. Rounding a sun-dappled corner in the road, we all stop dead in our tracks.

Up ahead, there is a strange blot on the ground: a humongous and fluorescent-green *thing* lying on the road. What on *Earth?* A tide of apprehensive murmurs, curious and excited, mingles its way among us—and then the wave breaks, and we all scramble to get a closer look.

"What *is* that?" one student asks incredulously.

"Some kind of flower, maybe?" suggests another.

We walk up to the thing, do a little peering, and realise—somewhat fatuously—that it's just a curled-up caterpillar, albeit an extraordinarily odd one. Its body is thicker than that of any caterpillar I've ever seen. And the color—imagine the sinister, neon glow of the just-spilled radioactive matter that's about to give a sci-fi protagonist their super powers. This caterpillar is several shades *more* neon. And to top it off, its plump, chartreuse body is riddled with tufts of long yellow hair arranged in neat little rows. Strange though this creature may be, after a few moments our collective sense of excited suspense gradually begins to dissipate. There's a bit more poking and prodding, and a touch more ogling and gawking, and then we continue on our way home.

That's when I spot it: a lone, blue-capped, blue-labelled PET bottle that was once filled to the brim with Pocari Sweat, a popular sports drink here in Japan. It's lying there empty and abandoned on the edge of the road, amongst the ferns, duff, and small red freshwater crabs lurking in the verdant shadows.

"People still litter?" I huff. "Like, is that still a thing people do?" I puff. "What a total *drag*," I complain, then finally pick up the bottle. It's not *too* dilapidated, I think to myself. I'll give it a wash and pop it into the recycling bin at home.

“But Andrew, the forest is thirsty too,” says one of the kids, a cross-generational friend who is also my student and neighbor. “And you just took its drink.” He smirks at me—which is never a good sign, coming from him. “So, I’ll give it mine!” Right before my eyes, salvaged litter still clutched in my indignant environmentalist hands, he launches his bottle of cola into the woods.

Okay, wow.

“Didn’t you *just* learn about plastic pollution in school?” I ask, trying not to sound too miffed.

“Hmm, did we? Can’t recall,” he says, barely controlling his laughter.

Internally, I was fuming. Probably more *bewildered* than fuming per se, but still... kind of fuming. Looking back on it now: whether I shook my head and let it slide with minimal chastisement, kept my cool and took the opportunity to make this a teaching moment, or let it launch me into my usual aggrieved tirade against pollution, fossil-fueled capitalism, and all kinds of environmental archnemeses, I’m not too sure. In any case, that particular kid hasn’t littered in front of me since.

Nevertheless, I just couldn’t shake this bottle-yeeting incident. I figured—and still do, to some extent—that his actions were probably a one-off manifestation of that sometimes-incomprehensible variety of teenaged jest and boffola. Still, I needed to understand why he could so brazenly and brainlessly throw trash into pristine forest right in front of me, someone he had seen complaining about and picking up litter for *years*. To make matters worse, this incident was, at the time, the latest in a long line of little heebie-jeebies—doubts expressed about the scale of the climate crisis, apathetic attitudes towards environmentalism, sometimes outright refusal to engage in discussions about sustainability—that I’d encountered over the years as an English teacher with some of my junior high school students.

The curious thing is, these kids’ junior high school has a dedicated Education for Sustainable Development (ESD) curriculum. They live on the island of Yakushima, a UNESCO World Natural Heritage site and one of the most famous ecotourism destinations in all of Japan. And beginning in elementary school, they have had classes, workshops, and field trips about a whole range of environmental issues, history, and culture.

So... What gives? What was with this apparent disconnect? Such ponderings became the impetus for my graduate studies in Human Ecology—and eventually, this thesis.

1.2 Motive

Date: October 29th, 2021. Location: Yakushima, Japan.

It is late afternoon, but the autumn sun schemes with the string of mountains west of town—*Shitogo-dake*, *Issou-dake*, *Nata-ore-dake*, and a slew of craggy others—to insist upon evening, already hinting at sunset despite my watch not yet reading four o'clock. I'm sitting in the chemistry lab of Yakushima High School, waiting for some students to arrive for our first research session. Amongst them will be the kids who, nearly four years ago, inspired this project in the first place. I almost can't believe how much time has passed since that fateful day in the forest. The students should be here in about ten minutes. Doubts buzz around insistently inside my head. Will this project realistically make any smidgen of difference in the sustainability-thinking of these kids—will it have *catalytic and tactical authenticity*, as Bryman (2012: 393) says it should? Or is this just a vanity project, a self-indulgent exercise spurred on by the neoliberal meritocracy that demands my master's degree? I shudder at my own words. *Neoliberalism: I certainly hope not. 'Catalytic authenticity' sounds good though.*

In any case, it's not like I've come here unprepared. The aims of this research, while myriad, are deeply interconnected and layered upon one another in pursuit of a cohesive, art-oriented approach to sustainability issues. They might be thought of as separate and distinct fibres which I seek to draw, twist, and spin into threads that may later be layered into the warp-wefts of Yakushima's sustainability tapestry.

1.2.1 Pattern Weave

The first fibre is texturally intriguing, pervading the weave deeply and providing vital and robust underlying filamental structure to the tapestry. This is the thread constituted by an exploration of the role that participatory art has to play in knowledge co-production around sustainability issues.

Art and science, sometimes respectively protracted to intuitive and systematic thinking, are often pitted against one another in a kind of end-all, be-all dichotomous boxing ring (Scheffer et al, 2015). "In the that's-not-a-real-career corner, we have Art, an innate talent you're either born with or not, hailing from both the hallowed mausoleum halls of Italian museums *and* those unserious liberal arts colleges alike," the ring announcer cries. "And in the-only-legitimate-way-to-understand-this-cosmos corner, we have Science, faithfully yet often uncritically eulogised as the paragon of the One True Metric: utmost objectivity."

This dichotomy is, of course, an exaggerated and thoroughly 'modern' cultural artefact of the Western scientific heritage. Despite widespread emphasis on STEM educational tracks (Daugherty, 2013), art and science have long been intertwined. Both exist as avenues in the human pursuit of understanding the world, more often than not informing one another within that pursuit (Scheffer et al, 2015). It is no coincidence that the lauded period of awakening and refinement known as the European "Renaissance" was a flourishing of *both* artistry and scientific thinking, with long and concurrent revolutions in a

diverse range of fields such as painting, architecture, mathematics, sculpture, biology, politics, literature, anatomy, rationality, and philosophy (Smith & Findlen, 2002). Widening our gaze beyond Europe, it is also clear that artistry, craftsmanship, and intellectualism run parallel across huge swathes of time and culture, encompassing everything from the environmental knowledge encased in the basket-weaving of Great Basin Native Americans (Fowler & Lepofsky, 2011: 290-291) to the linguistic and visual artistry of Chinese calligraphy (Ingold, 2007: 123–155).

Art and scientific research each seek to elucidate, in ever-new and elegant ways, the multifarious facets of both human and nonhuman nature. As stated by Jokela et al (2015, pp. 434), "art and science complement each other essentially: First, they aspire to focus and express our views of the world clearer; and second, they are part of the overall kew of society and people and at their best function as told to change and improve the society." Through that focusing of our understandings, art and science both contain within them aspects of the ineffable: that which resonates down to our deepest emotional wellsprings, catalyzing internal experiences so characterised by poignancy and perplexity that sometimes there are no words to accurately describe them. In this way, scientific research can be described as "artful" and vice-versa. It is also in this way that we might take art another step further beyond creation and viewing, and utilise it as a sounding board for novel modes of knowledge comprehension and production that goes beyond the art itself. It is precisely *this* dialogic utilisation of art as a processual and participatory boundary object (Kim, 2018; Jokela et al, 2015; Star & Griesemer, 1989) with which qualitative sustainability research may be synergised.

With regard to the term *sustainability*: This thesis assumes its strong definition, defined by Kuhlman & Farrington (2010: 3441–3443) as "maintaining well-being over a long, perhaps even an indefinite period", primarily through the assertion that "the next generation should inherit a stock of environmental assets no less than the stock inherited by the previous generation". The manifold and entangled ecological, social, and economic facets of this concept form such a vast web that it is sometimes a challenge to know exactly what sorts of information it constitutes. This can be especially true in Japan, where public discourse on the matter has only recently seen widespread upticks. According to the 2021 iteration of a yearly survey conducted by the Asahi Shimbun newspaper, the ratio of people in the greater Tokyo area who *have* versus *haven't* heard of the UN Sustainable Development Goals (henceforth "the SDGs") was finally inverted in 2021—six years after the Goals' establishment—with the latter falling to 47.3% and the former reaching 52.7%. This represents an on-year change of approximately 30% and 60%, respectively. In the nationwide results of this survey, however, the number of those who *haven't* heard of the SDGs still edges out those who *have*, with the former standing at 54.4% as of April 2021. Furthermore, of those respondents whose work explicitly involves the SDGs in some capacity, 59.8% commented that they see general awareness of the SDGs by the public as *not* rising (Asahi Shimbun, 2021).

Needless to say, explicit climate-change oriented sustainability thinking in Japan as a mainstream phenomenon is still in its emergence. This is true on the island of Yakushima as well. Despite a strong emphasis on the local ecology across multiple sectors of the island, considerations of the island's nature and its human interconnectedness through the lens of global sustainability are only just beginning to pick up speed, especially amongst the youth. Just two years ago, municipality-sponsored research that surveyed junior high school students found that literally *zero* students knew what the SDGs actually were (Imakake, 2022). Now, those same SDGs form the core of Yakushima's educational approach (Yakushima Board of Education, 2021). Further, art as a subject of scholarship on Yakushima has been enervated through the years, with Yakushima High School no longer offering a single visual arts course as of this writing (Yakushima High School, 2021).

The first aim of this research is thus to determine if participatory art can be used, in combination with other qualitative approaches, as a fresh impetus to spur sustainability knowledge co-creation amongst local students. As we shall see in Chapters 3 and 6, the localised utilisation of participatory art methods also manifests implications for the wider use of artistic methods in research and educational settings, especially those concerning sustainability.

1.2.2 Inlay

The second fibre is perhaps the most visually noticeable. It is undeniably dimensional and dynamic. It catches the eye and cornerstones the tapestry's motif, at first glance perhaps hinting at possible aesthetic superfluousness. However, it in fact twines itself suffusive and inextricable into the underlying structure of the weave. This is the fibre of Yakushima High School students' glocal socio-ecological awareness.

"Think Globally, Act Locally" is a phrase we've all heard at some point. It has come to be something of a slogan for the global push toward sustainability, especially within institutional sustainability endeavors such as the SDGs (Japanese National Commission for UNESCO, 2021). It is also a launching point for the notion of *glocality*, which seeks to understand the ways in which the global is absorbed and transmuted by the local into both a syncretic and novel third form (Tokunaga, 2018). As Gutierrez (2013: 20) puts it, as a consolidating phenomenon in which "the threat of global homogenization" and "the fear of local isolation" seek reconciliation and resolution, the "process of penetration-integration of the global with the local, or *glocalization*, allows global and local spaces to interact with and enrich one another through the blending of shared elements and vital relations."

A vast swathe of fields and perspectives within the diverse sustainability biome—from environmental justice (McIntyre-Mills, 2018) and deep ecology (Devall & Sessions, 1999: 200) to degrowth (Healy et al, 2015) and World Systems Theory (Feldman, 2002; Lennerfors et al, 2015)—emphasize the

recognition of and triangulation from *interconnectedness* as integral for lasting sustainability transformations. And whilst even the esteemed conservationist Jane Goodall recently admitted that constantly referencing the global scale of the climate crisis can very well be overwhelming—"Quite honestly, if you think globally, you're just… so depressed" (Kwong & Goodall, 2021: 2:23)—an understanding of the Earth-spanning reach of humanity's interactions with consumption, politics, knowledge production, hegemony enforcement, etc, is a necessary tool in building up the socio-ecological agency, resiliency, and capacity of regional localities (Escobar, 2007; Shiva, 2008). This thesis thus assumes the premise—one explored in-depth in Chapter 2—that *glocality* is a helpful framework for communities and localities to consider their socio-ecological embeddedness in wider power structures and material flows—a consideration that can either help those localities extricate themselves from those structures (through such endeavors such as decarbonisation), and pursue a political ecology of sustainable environmental ethics. Throughout this thesis, the terms *glocality*, *sustainability*, *socio-ecological glocality*, and any variety of their combinations will be used to address dimensions of sustainability within the context of world interconnection, especially emphasising the ripples and whirlpools that flow back and forth both between and among the global and the local.

This thesis is explicitly concerned with notions of such socio-ecological glocality as conceptualised by high-schoolers on Yakushima. Already participants in the economy, and future independent community member-makers, their individual and collective notions of socio-ecological glocality are a metric of interest when considering the sustainability conditions and potentials of Yakushima. The second aim of this research is to extract these localised notions via participatory art, thus allowing us to explore the role of participatory art in sustainability research and education.

1.2.3 Selvage

The third and final thread is reserved for the selvage; for the stitching that rounds off the fabric's edges, binding it to itself and preventing any unraveling. This is the thread of reflection, visible stitches of which may be taken as points of consideration for Yakushima's ESD pedagogy.

As aforementioned, explicitly sustainability-oriented organizing is just emerging on Yakushima. An active interest exists both in the municipal government and the island community in cultivating and refining Yakushima's place in a sustainable world. At present, this is primarily conceptualized through the United Nations SDG framework, which is used as a reference point for both the government and NPOs in tabulating their sustainability actions and future-envisioning (Imagine Yakushima, 2021; Japan National Commission for UNESCO, 2022; Yakushima Board of Education, 2021; Yakushima Mirai Meeting, 2020).

The third and final aim of this research is thus to utilize participants' art-driven thoughts to offer a modicum for further reflection on Yakushima's sustainability trajectory as it pertains to youth and their education.

1.3 Research Questions

With those three research aims in mind, this thesis is driven by the following research questions:

1. How is socio-ecological glocality expressed by Yakushima High School students through art?
2. How does the creation and utilisation of this boundary object through participatory art facilitate conversations about and conceptualizations of socio-ecological glocality?

1.4 Thesis Structure

This thesis is divided into the eight chapters of the painting process. Chapter One sees us gathering the tools of our craft: namely, an introduction which includes the research inspiration, aim(s), purpose, and research questions. Chapter Two primes the canvas with an under paint of topical context—the background knowledge that underlies our piece. Our artist's palette is Chapter Three, upon which we mix our theory-paints together to form a cohesive color scheme that will carry through to the analysis. Chapter Four describes the art of doing; the explanation of technique that guides our brush-holding hands. Chapter Five provides an account of the real-time process of doing the art. A discussion and analysis of the finished piece materialises in Chapter Six, thus answering RQ1. This is followed by a moment of reflective, RQ2-answering contemplation in Chapter Seven. In Chapter Eight, we wipe our hands, wash our brushes, and organise our thoughts into conclusions on the project's overall composition and contributions.

2. Priming the Canvas: Background

2.1 "Yakushima-style" Education for Sustainable Development

As of this writing, institutionalised environmental education in Japan is rapidly developing. A skeleton framework in the name of Education for Sustainable Development (henceforth "ESD") exists as part of Japan's Ministry of Education, Culture, Sports, Science, and Technology's (MEXT) National Curriculum Standards. This ESD framework is fundamentally organised in accordance with the UN's Sustainable Development Goals. Further distilling the 17 SDGs, MEXT has identified six core perspectives that comprise "sustainable society-building" through which ESD in Japan should be defined: diversity, interdependence, limitation, fairness, cooperation, and responsibility (Japanese

National Commission for UNESCO, 2022). Details of this nationally-prescribed ESD "curriculum", however, are left to local municipalities, schools, and teachers (Japanese National Commission for UNESCO, 2021). While locally-tailored curricula largely reflect the place-based pedagogies that we shall discuss in Chapter 3, the ambiguities and under-construction nature of Japan's ESD goals are indeed a remnant of the rampant neoliberal policies of the national government (Ando & Noda, 2017: 42), and often leave those aforementioned municipalities, schools, and teachers at a loss for how to *actually* implement ESD curriculums. Given the long-standing rigidity of Japan's educational system (Cave, 2001), curriculum change and educational reform—especially in the name of ESD—are often difficult and fail to materialise (Ando & Noda, 2017: 42). As such, informal environmental education on the grassroots level involving NGOs, independent ESD coordinators, and local community has materialised as the primary avenue toward ESD (Ando & Noda, 2017; Noguchi, 2010; Noguchi, 2017).ESD on the island of Yakushima in southwestern Japan—branded as "Yakushima-style ESD" by the local Board of Education (Yakushima Board of Education, 2020)—is currently coalescing atop this base matrix of circumstances.

Yakushima is a small island lying 65 km off the southern coast of Kyushu. It is about 130km in circumference and 500^2 km in area, approximately 65% of which is an overlapping mixture of protected forest areas including but not limited to protected wildlife sanctuaries, primeval forest, national park, Ramsar Convention Protected Wetland, UNESCO Biosphere Reserve, and UNESCO World Natural Heritage Site (Kyushu Office of Forest Management, 2022; Japanese Ministry of the Environment, 2022; Yakushima Environmental and Cultural Foundation, 2000; Yakushima World Heritage Conservation Center, 2021). Yakushima possesses a unique ecology in which the entire latitudinal distribution of subtropical- to alpine-climate flora and fauna of Japan can be found vertically distributed along the 1,935m change in altitude from sea level to Yakushima's highest peak, *Miyanoura-dake* (Yakushima Environmental and Cultural Foundation, 2000).

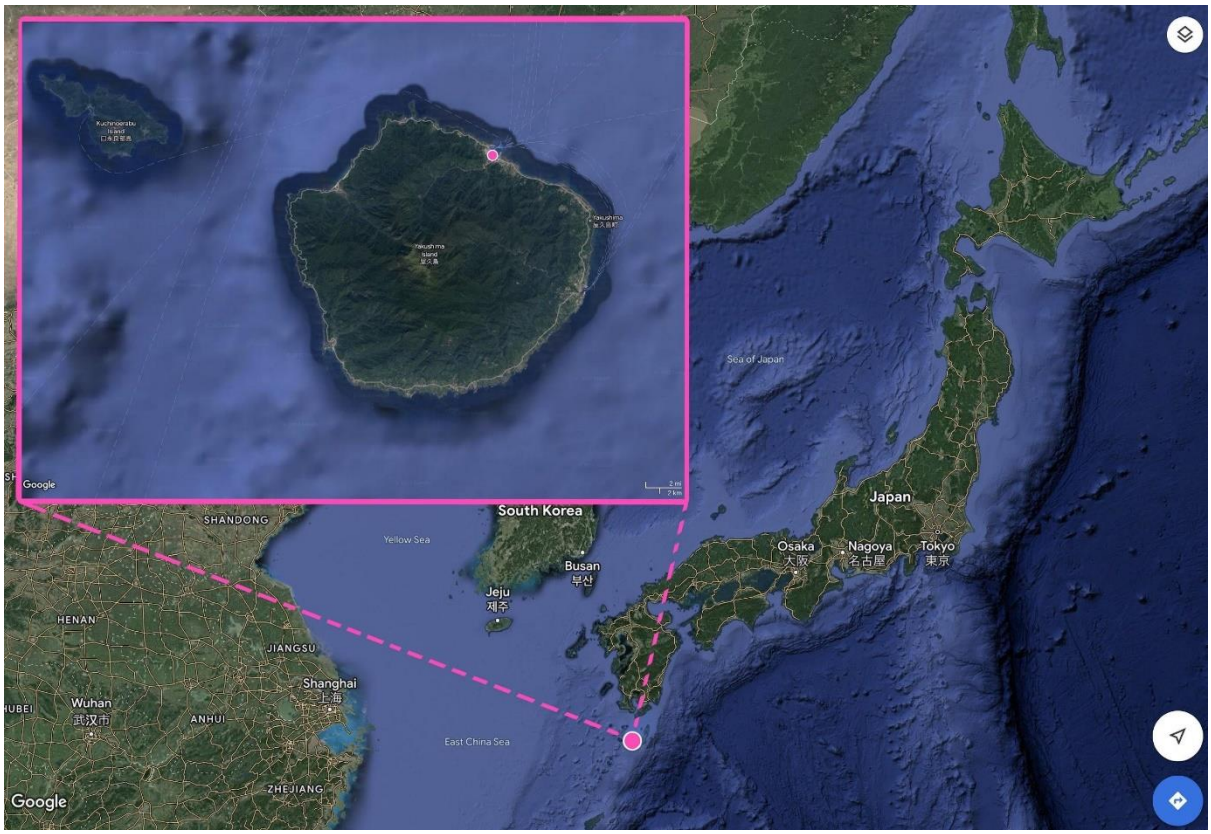

Figure 1: Map of Yakushima, Japan (superimposed onto a regional map of East Asia)

Map also includes neighbouring Kuchinoerabujima, which is part of Yakushima Municipality (Google, n.d.)

The island has a population of around 12,000 people spread out across 25 small towns and villages—a population which, like the rest of Japan, is seeing a steady decrease in number and increase in average age (Nomura & Koizumi, 2016; Yakushima Municipality, 2020a). This populace resides on a narrow strip of coastal area where the average monthly temperature often tops 20ºC, but does not drop below 5ºC, even in the winter. The island's central region is dominated by a series of peaks over 1,800m in height, which are often blanketed in meters of snow during the winter months. Heavy rainfall characterises the island: as a local saying goes, "rain falls thirty-five days a month on Yakushima". This is largely due to the warm Kuroshio Current of the ocean, which ensures Yakushima's sea waters maintain a year-round average temperature of about 19ºC. This gives the island a thriving and tropical-species–populated marine ecosystem in addition to its on-land marvels. As a result of this unique ecology, the island's nature is the focal point of both island activities and identity, and in fact tourism accounts for a majority of economic activity on Yakushima (Yakushima Environmental and Cultural Foundation, 2000), with the yearly average of visitors often surpassing 300,000 (Kumage District Tourism Council, 2015).

The municipal Yakushima Board of Education (BOE) is currently in the midst of experimentation with ESD content, procedure, and administration in its schools. This experimentation draws from ESD

guidelines determined at the regional prefectural level, with semi-regular input from various actors and stakeholders, including the prefectural BOE, regional town-level administrative governments, sustainability research institutions, and environmental and community NGOs (Kagoshima Prefectural Government, 2021). In keeping with both the nationwide trends previously discussed in Chapter 1.2.2 and the nationally-prescribed ESD guidelines, the majority of these sustainability-oriented endeavours have adopted the UN's SDGs as their operational and evaluative frameworks (Yakushima Board of Education, 2021; Yakushima Environmental and Cultural Research Center, 2021). As such, ESD here is explicit in its *constructive* goals, which aim for a rethought approach to society and nature. In Chapter 3, we shall explore this approach's compatibility with feminist and decolonial political ecologies. The substantive content of Yakushima's ESD, however, is very much being grassroots-synthesised as per the wider environmental education trends discussed earlier in this chapter. As a local BOE official put it to me, "Yakushima's ESD is a living, growing organism." He continued by telling me that the primary goal for the island's ESD at this point in time is to form as many connections between people (and institutions) as possible in order to facilitate the maximum possible exchange of knowledge and expertise. This, according to the official, includes globally-oriented perspectives: "Anything to broaden the horizons of our students, excite them about the world, encourage them to study foreign languages, and imbue themselves with sustainability thinking."

He, the BOE, a growing number of teachers, and many community members understand that Yakushima has vast potential to carve out a name for itself as a global sustainability hub: as a site for not only rethinking the human valuation of and coexistence with nature, but for materialising this sustainability vision as well. As we shall explore in Chapter 3, this perspective is highly compatible with notions of *glocality* that are critical to sustainable transformations. These notions, however, have until now been conspicuously absent from the ESD curriculum on Yakushima. This is especially true of the high school, with whose students this research took place. When I asked the coordinator of the high school's environmental studies track whether or not its curriculum included global perspectives on environmental issues or highlighted glocal aspects of Yakushima's socioecology, he answered with a resounding, "not really." Instead, the environmental studies track of Yakushima high school emphasises the extremely unique geology and ecology of the island from a natural sciences perspective, whilst sprinkling in details about local environmental culture and traditions. In his words, more so than getting into the nitty-gritty of information as it pertains to research or academic study, the environmental studies track seeks to create an opportunity for the students to encounter socio-ecological aspects of their island, never mind whatever results that encounter may later produce for the student.

While the concept is discussed in greater detail in the following chapter, this type of pedagogy serves to foster a sense of place, which has strong correlations to pro-environmental behavior (Adams et al, 2010; Vaske & Kobrin, 2001). While Yakushima High School is administered by Kagoshima Prefecture and

not directly by Yakushima Municipality as the elementary and junior high schools that feed into it are, its curriculum and activities are nonetheless closely coordinated with those of the municipal BOE. The inclusion of *glocality* in the currently locality-focused place-based curriculums of both the Yakushima BOE and Yakushima High School, this thesis asserts, would bolster the possibilities of the youth—and by extension, society—of the island to holistically and constructively craft a sustainable worldview characterised by the "diversity, interdependence, limitation, fairness, cooperation, and responsibility" that the island's ESD seeks to highlight (Japanese National Commission for UNESCO, 2022; Yakushima Board of Education, 2021).

3. Mixing the Paints: Theoretical and Analytical Framing

The theoretical basis for this thesis is a wide-ranging, transdisciplinary menagerie of *place* and *connection* in the sustainability context. It assumes sense of place as established in various academic disciplines and literatures as its nexus of investigation—one that prioritises the holism of art, emotion, and feminist decolonial scholarship. This chapter explores the accretion of theories that motivate this research, and through this exploration thus constructs the analytical prism later used in Chapters 6 & 7 to refract and assay the gathered data into its constituent significations.

3.1 Glocality, Decoloniality, and Sense of Place

As we touched on in Section 1.2.2, the core focus of this thesis lies in the concept of glocality. *Glocal* is a portmanteau of the words "global" and "local", and the term in its most general sense describes the quality of connectivity between the two. The word has a history in Japanese business marketing as the *wasei eigo*[1] グローカリゼーション (*gurōkarizēshon*; glocalization), when it arose in the 1980s to refer to business localisation practices across the globe (Uesugi, 2014: 5). This iteration of glocality is originally modeled on the Japanese notion of 土着化 (*dochakuka*) (Robertson, 1995:28). The term 土着 (*dochaku*) suggests ideas of *nativity* or *belonging* to a land or region (Kōjien, 2018a), akin to *indigeneity* in English. Add to this the character 化 (*ka*; change), and the *process* that leads to such nativity or belonging is denoted. In the Japanese context, this has historically referred to the adaptation of agricultural techniques to local environments (Robertson, 1995: 28). The 1991 edition of The Oxford Dictionary of New Words acknowledged this Japanese etymology when it first officially defined the process of "glocalisation" broadly as being "formed by telescoping global and local to make a blend" (Oxford Dictionary, 1991, cited in Robertson, 1995: 28).

[1] Wasei eigo (和製英語) is defined as a Japanese term constructed from one or more re-appropriated English terms; Japanese "pseudo-English" or "Japanglish" (Kōjien, 2018b).

In this early usage of the term, "glocalisation" acts as an operational agent of *globalisation*—one might imagine here the addition of region-specific menu items to local iterations of a global fast food chain in order to increase regional relevance and appeal in the pursuit of capital formation. While *globalisation* lacks any universal definition (Niemczyk, 2019), it is a complex and often critically-confronted phenomenon (Appuradai, 1996; Bauman 1998; Ferguson, 1992; Friedman, 2000; Giddens, 1991; Robertson, 1995) that, at its most general and impressionistic level, describes the oft-homogenising spread of technology, trade, and "democracy" around the globe, especially in the post-Soviet "triumph" of world-systemic capitalism (Arnason, 1995; Ferguson, 1992; Robertson, 1995).

For the purposes of this thesis, however, another denotation of "glocality" is adopted: that of the critical social sciences. Here, the concept of glocality is understood as the co-creative confluence of the local and the global, and the resulting social dimensions (Gutierrez, 2013). Rather than viewing glocalisation as business-jargon micro-marketing that exists within the overarching framework of a hegemonic and homogenising globalisation (Robertson, 1995: 29), *glocality* is taken to be a self-reflexive acknowledgement of both the tensions and catalysts that exist between the seemingly opposing trends of universal versus particular, homogenisation versus heterogenisation, and global versus local. Anthropology has long advocated for this contextualisation of cultural investigations: for the explicit acknowledgement of the global conditions of existence which transformatively integrate local peoples and cultures into the larger world system (Ekholm & Friedman, 1985; Sahlins, 1993). Glocality as handled by this thesis does just that. In the words of Zygmunt Bauman (1998: 42), such glocalisation is "a process inside which the coincidence and intertwining of synthesis and dissipation, integration and decomposition are anything but accidental." It is an awareness of local positionality within the overlapping, synergistic global contexts of culture, language, economy, politics, news, and knowledge—and an awareness of the *agency* within that positionality. As Friedman (2000: 295) expresses, this agency is "the ability of a culture, when it encounters other strong cultures, to absorb influences that naturally fit into and can enrich that culture, to resist those things that are truly alien, and to compartmentalise those things that, while different, can nevertheless be enjoyed and celebrated as different".

Some scholarship has been critical of glocality, arguing that it is largely a pejorative force that keeps certain classes tied to a place whilst the rich gain greater and greater access to the world (Bauman, 1998). Whilst this may indeed be a true and valid class-analysis application of the term, this thesis instead cornerstones its treatment of glocality in the agency-emphasising articulations of anti-colonial, anti-eurocentric, counter-hegemony thinking put forth by decoloniality scholarship. In the decolonial view, "modernity" and coloniality are inextricable concepts, with the former being a product and continuation of the latter (Escobar, 2007: 185; Grosfoguel & Cervantes-Rodríguez, 2002; Quijano, 2007: 169).

Currently the third- or fourth-largest economy in the world according to various World Bank indicators (The World Bank, 2020a; The World Bank, 2020b), Japan has had a notable developmental journey to "modernity"—that is, a notable developmental journey to a saturated engagement with global finance and deep participation in the world-system capitalist order (Murphy, 2010). Whilst the bounds of this thesis necessitate a sidestepping of vast swathes of the nuanced tensions that define the developmental history and political economy of Japan, this thesis does nonetheless assert that Japan's major role in the global economy and its close military and economic association with the United States (Murphy, 2010; Pyle, 2018; Vogel, 1999), along with its long-standing neoliberal socioeconomic policies (Suzuki et al, 2010) and self-identified status as a Global North developed nation (Japanese Ministry of Foreign Affairs, 1976), serve to enfetter the country to the global project of capitalist "modernity" that finds its roots in hegemonic eurocentrism.

3.1.1 Decoloniality

Therefore, to critically consider the circumstances and role of Japan in the world-spanning context of the closely-intertwined forces of modernity and globalisation—that is, to view it carefully through the lens of *glocalisation*—decoloniality thus offers a useful set of perspective-orienting tools through which to extol and prioritise the social, cultural, and epistemological agency of those at the borderlands of this modernity (Escobar, 2007). To engage in "border thinking", as Mignolo terms it (Mignolo 2000, cited in Escobar, 2007: 187), is to engage with the "rearticulation of global designs by and from local histories; with the articulation between subaltern and hegemonic knowledge from the perspective of the subaltern" (Escobar, 2007: 188). The "subaltern" here are those shunted to and kept at the borders of "modernity": nature, women's bodies, and dark bodies, as juxtaposed by the "totality of the male eurocentric world" (Escobar, 2007: 197). These are the same border regions of transformative cultural synthesis to which Ekholm & Friedman referred to decades prior in their appeal for a greater anthropological recognition of glocality (Ekholm & Friedman, 1979, cited in Ekholm & Friedman, 1985).

To what ends, then, does border thinking lead? It is, in fact, explicit in its activist standpoint, in its pluriversal pursuit of a particular political ecology (Kothari et. al, 2019; Escobar, 2007). This is one that recognises the current climate crisis as a product of modernity, as a failure of modernity to both "enable sustainable worlds" and "articulate biology and history save through the capitalisation of nature and labour" (Escobar, 2007: 197). It is also one that seeks to construct "an ethics and culture of sustainability", to rethink "production toward a new environmental rationality", and to produce "dialogue among forms of knowledge" towards those novel rationalities (Escobar, 2007: 197–198).

Whilst Japan was not subject to Eurocentric coloniality in quite the same way as the Latin American countries from which decoloniality and border thinking has spawned, its broad-stroke association with and culpability in the ennoblement and enabling of the global project of Western modernity (Qi & Zhang,

2008) nonetheless finds parallels, both internal and external, to the structures and phenomena which border thinking addresses. The scope of the latter, riddled with details of Japan's imperialistic past (Ruoff, 2010) and contemporary issues such as agricultural land-grabbing in the Philippines by Japanese firms (Borras & Franco, 2005; Global Witness, 2019; Hall, 2015), cannot be adequately addressed within the limits of this thesis. The former, however, comprises an essential aspect of this research: that internal borders to global "modernity" and its thoroughly unsustainable means and ends *do* exist, even well-within long-established cultural and geographical bounds of its reach.

Yakushima, then, may be thought of as tenuously occupying one such border. In the wider context of Japanese history, Yakushima has always played an auxiliary role. A small island along the southernmost outskirts of "mainland" Japan, it was largely left to its own devices during the feudal ages of the nation, during which it paid taxes to the regional ruling Shimazu Clan in the form of cedar wood planks. The island saw few scuffles for its relatively autonomous control well into the 16th century. When it was absorbed into the Satsuma Domain (a regional vassal of the Tokugawa Shogunate based in Edo, or modern-day Tokyo) at the turn of the 17th century, its role in the economic network of early modern Japan as a supplier of high-quality timber was solidified. Additionally, Yakushima was sometimes used as a place for banishment of political exiles from the Satsuma Domain and the Tokugawa Shogunate. Aside from these roles, Yakushima remained a rural and far-away island, outside much of the cultural and political currents of mainland Japan (Yakushima Environmental and Cultural Village Foundation, 2021: 12–80).

As such, Yakushima has retained much of its local environmental history, and its unique ecological heritage is in fact its most cherished and enchanting feature (Fukui & Kurotobi, 2013)—so much so that it became the first UNESCO Natural World Heritage Site in Japan.[2] It remains, to this day, in the peripheries of mainstream Japanese society: rural, sparsely populated, ever-aging. And yet, it is also famous for and economically reliant on its nature—and therefore, the site of intense futuring, with the goal of meeting the challenges of sustainability head-on in the modes most appropriate to its island particularities (Imagine Yakushima, 2021; Yakushima Board of Education, 2020; Yakushima Board of Education, 2021; Yakushima Environmental and Cultural Research Center, 2021; Yakushima Mirai Meeting, 2020). As touched on in Chapter 2, is the power of these particularities to propel the island toward sustainability—to construct an ethic of environmental rationality—that Yakushima hopes to harness in its ESD. In other words, the Yakushima BOE is hoping to cultivate a strong *sense of place* in its schoolchildren, whilst the island's wider society is itself embroiled in the same forward-facing process as well.

[2] This is a title it shares with Shirakami-Sanchi, a mountainous region in the northern Tohoku region of Japan. Both sites were simultaneously designated as UNESCO World Natural Heritage Sites in 1993 (UNESCO, 2022).

3.1.2 Sense of Place

The history and scope of sense of place theory and empirical studies is far too wide to address adequately here. However, the importance of sense of place has been a point of theorising for decades. Rachel Carson, harbinger of human ecology with her seminal work Silent Spring (1962), postulated in 1965 about the role that first-hand nature experiences have in the emotional development of children (Carson, 1965). Sense-of-place thinking has developed exponentially since then, with extensive literature touching on sense of place in relation to everything from childhood development (Chawla, 1992; Wilson, 1997) and imagination (Fettes & Judson, 2011) to well-being (Sampson & Gifford, 2010) and environmental management (Raymond et al, 2010). For a comprehensive review of the field's developmental literature, see Kudryavtsev et al (2012). For the purposes of this thesis, sense of place as it pertains to education and critical pedagogy will be addressed.

Firstly, a definition: a "sense of place" has two essential components: place attachment (the bond between people and a place) and place meaning (the symbolic meanings ascribed to places) (Kudryavtsev et al., 2012). More abstract, though no less valuable, notions such as aesthetics and a "feeling of dwelling" are also encompassed by the phrase (Hay, 1998; Ingold, 2000). A pedagogy that seeks to cultivate a sense of place, at the most fundamental level, is one that simply "adopts local environments—social, cultural, economic, political, and natural—as the context for a significant share of students' educational experiences" (Smith, 2002: 30). Through this adoption, place-based pedagogies focus on appreciation of the natural world (Dubel & Sobel, 2008; Smith & Sobel, 2010) and enrich holistic senses of place and belonging (Semken et al., 2009). Strong correlations have been demonstrated between sense of place and pro-environmental behaviour, especially in social dimensions such as community betterment (Adams et al, 2010), galvanisation toward environmental clean-up (Vaske & Kobrin, 2001), and social trust that later predicted civic environmental action (Payton et al, 2005). These strong correlations reinforce the possibilities of critical pedagogies of place to contextualise knowledge to the local in order to emphasise geographic and ecological situatedness (Gruenewald, 2003; Gruenewald & Smith, 2003).

"A sense of place," Albert Camus (1955: 88) wrote, "is not just something that people know and feel, it is something people do". Not only do locality-based actions and activities foster a sense of place, but so too does a sense of place foster one's actions. The astute understandings of situatedness offered by critical pedagogies of place may then be applied in the resistance against homogenising forces of a globalised culture (Ruitenberg, 2005)—a culture which, as we have explored, is characterised by unsustainable "modernity" (Escobar, 2007; Grosfoguel & Cervantes-Rodríguez, 2002). Therefore, critical pedagogies that foster a deep sense of place are necessarily compatible with, and in fact not quite so distinctive from, the rational environmental ethics present in decoloniality's political ecology.

Essential to note here, however, is an additional level of criticality—or radicality, as Ruitenberg (2005) puts it. They argue that pedagogies of place must treat "place" as a location under deconstruction (Ruitenberg, 2005: 218). That is, a true understanding of the local can only come through an understanding of the trans-local; that "nomadic interdisciplinarianism" and the comings and goings of thought and experience are what give rise to a meaningful sense of place; and that understanding "community" in the hopeful ways that sense-of-place scholarship suggests benefit environmentalism and wellness is to understand "community-to-come" as a "call of hospitality to those outside the community" (Ruitenberg, 2005). Thus are the threads of glocality woven into this patch of decoloniality and sense-of-place: the ultimate ends of critical pedagogies of place walk in step and rhythm with the sustainable world-building aims of decoloniality and the agential power of border thinking. To fully realise this synesthetic local agency of place-based education and political ecology, however, we must not only critically contextualise knowledge and phenomena inward *to* the local, but simultaneously—and perhaps, more vigorously—engage in the same processes outward *from* the local. As Tokunaga (2018: 129) notes, the situated knowledges that are developed through transnational flows, exchanges, and interminglings of ideas (combined with the processes of local mediation and recontextualisation) encourage discussions of and through transcultural and comparative lenses in order to explore multiple ways of being and becoming. That is to say, the true power of a decolonial sense of place lies in its *glocal* scope—and relies on feminist situatedness, as we shall explore in the next chapter.

3.2 Art, Emotion, Ecology, and Feminist Thinking

Currently blending together upon our altogether human-ecology–crafted palette are the tones of integrated glocality, gregarious and sustainability-oriented decoloniality, holistic anthropology, and radical sense-of-place pedagogy. To bring in complementary hues to our composition, we shall here stir in the crucially exigent pigments of evocative art and feminist narrative.

Section 1.2.1 touched on the importance of art relative to the false dichotomy between science and the humanities. To further contextualise this to climate change and sustainability, here is a quote from Bill McKibben (2005), activist environmental educator: "We can register what is happening with satellites and scientific instruments, but can we register it in our imaginations, the most sensitive of all our devices?" Nearly twenty years on, and this question remains a pertinent one—one that a plethora of research has sought to address.

Visual methods—the usage of visual communication such as photography, videography, infographics, etc in research—is well-established, as the entire academic discipline of visual anthropology might attest (Hockings, 1975). The insights into reflexivity and subjectivity provided by visual methods have also spilled over into a wide variety of interdisciplinary social science research (Pink, 2003). Among these

is the role of participatory art in sustainability and socio-ecological studies. Johansson & Isgren (2017) used painting workshops in their investigation of socio-environmental effects of land acquisitions in Tanzania. Adopting an explicitly decolonial attitude toward the knowledge production that their research addressed, they found that participatory art functioned to heighten the inclusiveness and richness of knowledge production about complex socio-environmental change from the bottom-up perspectives of the people directly affected. This mirrors findings of similar research projects which have found that arts-based practices benefit sustainability transformations by deepening connections to and understandings of nature (Raatikainen at al, 2020), supporting self-empowerment toward environmental action (Jokela, 2019), expressing and politicising indigenous rights and values concerning natural resources (Zurba & Berkes, 2014), developing situational and place-specific pedagogies (Jokela et al, 2015), fostering dialogue about cultural heritage and sustainability (Härkönen & Stöckell, 2019), prompting sustainability discourse through "evocative encounters" (Mjaaland, 2009; Thomsen, 2015), and preserving ecoliteracy and socio-ecological memory (Athayde et al, 2017; Kim et al, 2017).

What all of these studies have in common is that they use art, especially that of the participatory variety, to address a more visceral point: that the holistic *emotionality* contained in art and the artistic process has strong connections to sustainability thinking, action, & transformation. As sense-of-place theory suggests high levels of bond attachment foster dedication to a place and correlates to pro-environmental behaviour, participatory art within that context thus allows for both the expression and deepening of those dedicated bonds. It is the opposite face of Norgaard's (2011) *Living in Denial* coin: whilst emotional distance to climate change and social justice issues is a primary factor of inaction toward sustainability, emotional connection—especially that which is found through art—is essential to sustainability transformations.

Such emotionality is precisely what deeply qualitative research—subjective, impressionistic, and evocative qualitative research—aims for. Feminist scholarship that focuses on lived narrative and storytelling is of particular relevance here. Tsing (2015: 37) calls for "listening to and telling a rush of stories", especially those characterised by entanglements and interruptions. Haraway (1988; 2019) notes that all forms of knowledge directly reflect the particularities of their production, social identity, and location. We might think of art-making as a form of story-telling: as giving form to situated knowledges and emotions. These emotions, rather than being "individualised human subjectives", are instead embodied, relational, and situated experiences that are co-produced (Sultana, 2011, cited in Zaragocin & Caretta, 2021: 1505). In other words, the emotionality which fundamentally comprises a sense of place is something felt by the individual but constructed intersubjectively.

In relation to ecology, Haraway (2016) notes that "staying with the trouble" of living and dying during a time of great natural calamity facilitates the means to sustainable future-making. Tim Ingold (2000:

26), too, suggests that these forms of place-based emotionality and story-telling are essential in bolstering and reframing scientific modes of ecological understanding with what he terms *poetics of dwelling*. Such poetics are, according to him, an intuitive understanding of places as sentient ecologies rather than objects, an understanding which then provides the necessary grounding for any system of science or ethics that seeks to address the environment (Ibid: 24–27)—which, of course, our glocal, feminist decolonial political ecology does.

This communal sensing, this intersubjectivity and coproduction of place-based emotionality and poetics, necessitates externalisation, expression, and consolidation—processes that define art-making. Here we might loop back to the dialogic role of art in providing a holistic and kaleidoscopic opportunity to weave together diverse knowledges, create new thinking, and spur on discourse (Härkönen & Stöckell, 2019; Hollmén, 2015; Johansson & Isgren, 2017; Nightingale, 2016; Zurba & Berkes, 2014). This is particularly true for the case of "boundary objects", which are products of participatory art that take on different meanings for different actors (researcher, participants, viewer) but facilitate communication between them, thus straddling the boundaries of each situated perspective (Star & Griesemer, 1989). These objects are "valued on both sides of the boundary and provide a site for cooperation, debate, evaluation, review, and accountability" (Cash & Moser, 2000: 115).

This thesis thus rests on the theoretical premise that participatory art, and the substantive and richly affective narrative processes of its making and interpretation, provides a multidimensional mode of expressing and understanding a glocal sense of place, the poetic knowledges and awarenesses of which are altogether indispensable in the explicitly feminist and decolonial construction of a sustainability-oriented political ecology. This approach is also grounded in a subversion of the structural typicalities of the Japanese education system, which often casts youth in a passive role: recipients of facts, programmed with pre-established information in order to pass tests and exams rather than as active creators of critical perspectives and social knowledge, despite students' constructive and creative desires (Cave, 2001; Littlewood, 2000). Considering this backdrop, I sought to center the students' voices and perspectives in this research, allowing their own exploratory narratives—including the emotionality and sensitivities expressed through art—to occupy the focal point. In this way, I sought to draw from the necessarily anti-hegemonic feminist and decolonial academic and activist traditions, in which the values of situated narrative, lived experience, and subjective realities are recognized and celebrated (Haraway, 2019; Escobar, 2007; Exley et al, 2018).

4. The Art of Doing: Methodology & Miscellanea

4.1 Ethnography and Positionality

A few months before my research began: A fresh afternoon wind blew in from the ocean, the burning rays of the August sun buffeted by a light smattering of clouds. Perfect summer skateboard weather. Some high schoolers and I were at the port, mountain- and seabound vistas forming the background to our attempts at ollies and shove-its. I sat with one boy—in fact, the bottle-yeeter from so many years ago—sipping cold green tea and waiting futilely for the sweat to dry from our faces. He asked about my thesis, so I told him what I had in mind.

"Wait, *what?* You're gonna study *us?*" The sharp *clack-clack* and gritty *scrrrrape* of skateboards against concrete punctuated his sentences. "Will you even be able to learn anything meaningful from us?" Sarcastic as always, that one. After another moment, "It's kinda like we're an undiscovered tribe from the olden days, hah."

While my research is far from a classical ethnography, he wasn't wrong in his assessment of its anthropological nature. It does, in fact, draw strongly from the ethnographic tradition, with my own background in anthropology informing my approach. Ethnography is contingent upon significant time spent in the field with collaborators, intertwining both salient and quotidian activities, with a wide array of interpersonal and cultural details coagulating into a richly textural mix of qualitative data (Peoples & Bailey, 2009: 93). This approach is easily compatible with the highly qualitative and somewhat interpretive approaches to the case study discussed subchapter 4.2, and also allowed me to draw upon my long-term, cumulative, and holistic pools of pre-research knowledge and experience concerning this project's participants, their educational context, and their lives on Yakushima. Along the course of this research, discussions with participants about sustainability topics often occurred at unplanned times and in unplanned circumstances outside of scheduled research sessions. When possible, I audio-recorded these conversations with my smartphone. Otherwise, I made notes of these conversations' contents, as well as participants' behaviour and emotional presentation. This was done in order to cross-reference the more organised forms of data that were collected during the clean-cut research sessions.

My embeddedness in my research context is a point of depthful cogency. The research of this thesis indeed took place in a culture, language, and locality to which I claim no birthright, and within which I will forever be seeking fluency. This is not to say, however, that it remains totally foreign to me. This project itself is but one stage of an overarching personal journey of encountering and belonging to the island of Yakushima, Japan—one that has so far accounted for nearly a quarter of my life. All research

participants are close friends and familiar acquaintances: teenagers whom I have known since they were elementary school students; with whom I have spent weekends and holidays; whose older and younger siblings I have taught in school; whose school excursions I have chaperoned; with whose parents I have shared many a drink and meal. While this positionality is ultimately what facilitated this project to begin with, it also lent some peculiarities to this research.

Firstly, this study was conducted entirely in Japanese, a language in which I consider myself functionally fluent. I am, however, never without my dictionary. As with any foreign language, a vast cultural and historical background yawns far beyond my non-native linguistic comprehension. Therefore, while their manifestations were attentively minimised, it is essential to recognise the potentiality of conceptual aberrations and misinterpretations of nuance that may have arisen over the course of this research. While I am confident in the quality and credibility of my translations of participants' words and narratives, I do plainly acknowledge the fact that this research took place in a language within which I have not yet achieved total fluency. I relied here on respondent validation to clarify words or expressions with which I was unfamiliar or unsure. Had I employed a translator, I am sure I may have gleaned finer insights into and gossamer details of my students' perspectives. As it stands, I do not consider this a major limitation to this research, but it is a point of reflection nonetheless. Despite my intimacy with this place, I am but a student of it; half in, half out, almost always reminded of my foreignness by both language and the remnant sense of insulation that permeates Japan and its culture. Yet I am also often let into otherwise-inaccessible realms of life due to my long association with Yakushima and its people. A nod here, too, to the cobweb cultural and sociopolitical entanglements that my nationality and upbringing as a multi-ethnic 'Eurasian' American continuously effects into my experience in Japan as both a resident and a researcher.

Further, absolutely vital to be acknowledged is the power differential I experienced as a researcher with the high-school aged participants. My commitment to their education and personal growth as world citizens constituted a palpable *presence* throughout the research process. Not an obstacle, per se, but a tangible entity who required some looking after. I have acted as a teacher, mentor, friend, and trusted adult to these students for nigh on a decade. I know their interests and characters, and they know mine—especially with regard to environment, justice, and humanism. I can't *not* be their teacher in some capacity or another, as that is the fundamental nature of our relationship, no longer my students in the classroom though they may be. It was thus crucial to approach this aspect of our relationship with intentional mindfulness. Avoiding evaluative or linearly perspective-challenging modes of conversation concerning participants' knowledge and ideas on sustainability topics—and just as well, eschewing leading threads of questioning—was of paramount importance. Cultivating an open space of unreserved brainstorming, knowledge sharing, and mutual fact verification rather than an atmosphere of unilateral

teaching was essential not only for the most precise distillation of the desired data, but also for participants' explorative enjoyment of the research sessions.

Still, the fact of a researcher's intrinsic situatedness reinforcing the notion of "objective" neutrality as just an illusion of researcher dislocation (Exley et al 2018, 527) did not make itself unknown. During a particularly intense discussion with one participant—or heated debate, rather—over what essentially amounted to modernisation theory and affirmations of the supposed human-nature dichotomy, he wryly interposed, "Not gonna lie, I am kinda sensing that we are of slightly different opinions here."

"That's… okay," I replied, feeling a bit caught-in-the-act of pontification. "This research is about *you* rather than me, after all."

4.2 The Qualitative Case Study

Keeping in tune with the idiosyncratic locality–centered yet unrelentingly-fluid-in-scale thematic currents of glocality, this research relied on a centered focus on a specific phenomenon in a specific locality at a specific point in time as its launching point. As such, it may be helpful to conceptualise this project as a small case study of Yakushima high school students' socio-ecological glocal awareness.

According to Yin (2002), case study design is an in-depth study of one or more cases with the aim of a detailed and intensive analysis of a contemporary phenomenon in its real-life context, "especially when the boundaries between a phenomenon and context are not clear". This latter distinction is a point of particular salience for this project, where the students' subjective sense of their socio-ecological context *is* the phenomenon being investigated. While Yin's guidelines for case study methodology—with its strong emphases on objectivity and generalisability—suggest a more positivist approach to research design (Yazan, 2015), fellow case study methodologist Stake (1995) conceptualises research of the sort as being more impressionistic, with a particular emphasis on flexibility that allows the researcher to not only make adjustments along the course of the research through "progressive focusing" (Parlett and Hamilton, 1972; cited in Yazan, 2015: 149), but also to articulate each stage of the research and analysis processes in terms of the research participants' vicarious experiences in an emic perspective (Yazan, 2015: 148).

While the more fluid case study research techniques proffered by Stake may bring some issues of reliability, validity, and generalisability into light, both Bryman (2012) and Stake (1995) confront these issues head-on by referencing "triangulation" as a primary mode of establishing methodological rigour. That is, a researcher must use more than one method or source of data in their study of the phenomenon at hand in order to cross-reference and validate both the data and its analysis. Throughout the course of

this research, several methods were utilised across three distinct stages of data collection in order to obtain various aspects or *forms* of the same or interrelated data—a process detailed in Chapter Five.

4.3 Ontology and Epistemology

As one's gaze drinks up a painting, one inevitably considers the manifold layers of reality contained therein. Art is a representation of some reality, that is for certain. But is that "reality" a material one? Is it one born of unseen imagination? Or is it still deeper, one of forces that drive the aforementioned two? The actuality of the piece might suggest any of those three. Even in the case of the first, imagination and emotion have simultaneously inspired and inhabit the art nonetheless. The *actual* piece is but a window to that *real* layer, and the *empirical* gaze resting upon it is yet another. Each offer varying levels of interaction and mutual construction along the chain of their connection. Same too, for Critical Realism, the onto-epistemologies within which this research finds its footing.

Critical Realism's triplicate framework of the empirical, the actual, and the real (Bhaskar, 1975) can span any series of threefold steps along the chain of phenomena addressed in this research. For example, and in respective representation: my understanding of the students' perspectives ⇄ the behavioural psychology comprising those perspectives ⇄ the socio-cultural treatment of glocality and sustainability that shapes said psychology and perspectives. Or, perhaps: the students' lived observations of socio-ecological glocality ⇄ the glocal phenomena that constitute socio-ecological glocality ⇄ the global mechanisms that catalyse and constrain those phenomena. Bhaskar & Danermark (2006) delineate countless layers to be intertwined in this manner, from the biophysical and the psycho-social to the biographical and the micro-mesa-macro of groups, functional roles, and cultural tradition. This intermeshed "essential complexity" of different levels of reality is what they refer to as "necessarily laminated systems", the scope of which the empirical, actual, and real domains describe.

Feminist scholar Karen Barad (2003), in her "Agential Realism" interpretation, takes this notion a step further, suggesting that phenomena all along these scales are produced through "agential intra-actions of multiple apparatuses" that "may or may not involve humans". In her perspective, human and non-human agency informs systems and phenomena, which then, in turn, reciprocally inform agency. This is a supremely salient point in considerations—this thesis included—of climate change and humans' perception of, reception of, and responses to it. Bhaskar (2010: 9) later affirms this intra-action in his own reflections on climate change: "The antinomy of structure and agency is resolved in the transformational model of social activity, in a conception on which social structures always pre-exist human agency, but are reproduced or transformed only in virtue of it and in the course of ongoing social activity". The capacity of a critical realist strategy for confronting the climate crisis, as well as issues of sustainability and indeed glocality, are further confirmed by Forsyth (2001: 2), according to whom such

strategies seek to "understand ecological change through epistemological skepticism but ontological realism to underlying biophysical processes". This study "skeptically" (inquisitively; critically) addresses the epistomological subject of students' socio-ecological glocality conceptions, while prescribing to the ontological reality of the state of glocal sustainability, glocal social relations, and glocal material flows in the context of the climate crisis.

Of epistemological note here are the hints of social constructionism: while there very well may be the "real" and "actual" domains of nigh-imperceptible mechanisms that drive an objective reality of events and phenomena, our perceptions of, comprehensions of, and experiences within that reality (the empirical domain) must necessarily be shaped by our own constantly-shifting construction of said reality (Sayer, 2000). That construction is, too, constantly determined by our cumulative, and especially social, experiences à la Haraway's (1988) notion of situated knowledge, which merits, and attests to the personal, local nature of knowledge. Her notion that "objectivity turns out to be about particular and specific embodiment and definitely not about the false vision promising transcendence of all limits and responsibility" (Ibid: 582) slots in neatly to the Critical Realist assertion that our understanding of the "real" and "actual" domains will only ever be fallible, though we must approach this fallibility with critical evaluation (Benton, 2004).

4.4 Sampling

Opportunistic snowball sampling was utilised to recruit participants. The aim was to achieve as wide a variety of student participants as possible, since I was anecdotally aware of the large potential gaps in knowledge amongst students—gaps that would be dependent on any number of variables. These variables might include:

- The occupation of students' parents: Hiking guides and public servants are relatively common occupations on Yakushima; the children of such adults tend to be more aware of and proactive toward environmental issues than other children.
- Students' village of residence: Smaller villages tend to have tighter community relationships and more student involvement in traditional cultural events, a large majority of which focus on environmental heritage and sense-of-place–imbued aspects of local customs. "You should ask students from Nagata to participate," one student advised me. "Don't they do stuff with sea turtles? With that La Salle site or whatever it's called?" She was, of course, referencing the Ramsar Convention Protected Wetland near Nagata Village, a nesting habitat for endangered green sea turtles (*Chelonia mydas*). "La Salle" is the name of a school in nearby Kagoshima City.
- Whether students are born-and-bred Yakushima islanders or domestic/international transplants: Transplants generally tend to have more of an awareness of the wider world, and thus an

increased probability for heightened glocal awareness. Transplant families are typically attracted to Yakushima by its nature, its slower and smaller-scale pace of rural life, and its sustainability initiatives; this is often notably present in the worldviews and knowledges of their children.

- Students' study track in school: Students of Yakushima High School either belong to the academic studies track (with its science, humanities, and environmental science sub-tracks beginning in the second of three school years) or the business information track (Yakushima High School, 2021). "But business information students don't know *shit* about environmental issues," one student of said track remarked when I requested his participation.
    - Students in the environmental science sub-track participate in research projects and classes that are both totally unique to their course and unavailable to other students. These students, however, account for approximately 1/8th of the student population during any given academic year (Yakushima High School, 2021). As such, I expected these students' contributions might act as outliers should they participate, something I was sure to note across the course of the research.
- Students' schedule of activities: The educational system of Japan is competitive and demanding. Beginning as early as even elementary school, Japanese students often have little time to themselves outside of their studies and extracurriculars. Despite the high school administration's eager cooperation with my research, I anticipated a low turnout of students who would *actually* be able to participate in my research, no matter the interest they may have expressed beforehand. This concern was put into sharp focus when circumstances necessitated the scheduling of research sessions during standard extracurricular activities after school. Research also occurred during third year students' college entrance examination period, impeding many of those students' abilities to participate.

Within this context of broad-spectrum diversity amongst student experience, I advertised my research project on social media platforms such as Instagram, upon which a large portion of my followers are students at Yakushima High School. The consent form for this project—later detailed in the Ethical Considerations subsection—was also the backside of an informational sheet about my research, which Yakushima High School graciously posted in classrooms and on notice boards throughout the school. When a student expressed interest in participating, I encouraged them to bring their friends and classmates along with them to the sessions. This type of opportunistic snowball sampling occurred continually throughout the research project, as each stage of research was modularly designed to be able to accommodate new voices and perspectives into the collected data.

In the end, the makeup of my research participant pool was as follows: twelve from the business information track and five from the academic track, the latter including only one from the environmental

science sub-track. These seventeen total participants consisted of four first-year students, twelve second-year students, and one sole third-year student out of a school-wide total of 225 students (Yakushima High School, 2021). Limitations of this sampling are discussed in subchapter 4.6.

4.5 Ethical Considerations

Research protocols of Lund University were followed, plus several additional in-situ considerations. Upon receiving research approval from the Yakushima BOE and Yakushima High School, I began participant recruitment. Interested parties were given an informational sheet about the research themes and process, and an informed consent form outlining the usage and protection of personal information across the course of the research was signed by each participant and their legal guardian. Verbal consent was also requested at each instance of audio recording.

Research participants were closely involved in the analysis of their interviews, with co-creation and cross-validation of narrative continually taking place between participants themselves and with myself, the researcher. Involvement of participants in this type of co-analysis is an important ethical practice of research involving narrative of any kind (Riessman, 2008). Firmly establishing the fact that my research participants were in total control of the artistic images they produced and the meaning of the words they spoke was essential to my ethical process.

4.6 Limitations

This project was not without its limitations. Results of the employed sampling methods were, as the previous subchapter attests, less than impeccable. Due to the logistical circumstances of this research, however, this was an unfortunate yet unavoidable outcome. It might be said that this caused some obstacles in external validity—can the findings of such an idiosyncratic sample within an already idiosyncratic case really have any generalizable merit? Questions as such are common for qualitative research, especially case studies (Bryman 2012). While I recognise and accept this as a limitation for the particular qualitative data gleaned from this research, I would argue that the methodological results of the participatory art employed here are highly transferable (Bryman, 2012: 390) to other educational contexts.

Of note, however: student participation varied throughout the two-month span of research sessions in accordance with the students' personal schedules. The result of this was that despite the collaborative nature of the project, most fundamental final decisions about the visual and conceptual presentation of the piece were made by a core group of six second-year students. However, the impact of this imbalance was minimised with the modular design of the three research stages (explored in Chapter 5) and the final Stage Three interview structure, which left room for reflection on themes of sustainability and glocality

that did not appear in the final art piece. With that being said, internal validity—or credibility, as Bryman (2012: 390) argues the concept should be recontextualised for qualitative research—is high: my deep embeddedness in the research context, the multi-stage respondent validation of data, multi-data point triangulation, and co-analysis with participants ensures this.

Lastly, my role as art consultant in the students' creation of the art piece was a source of personal ambivalence. Given the differential in knowledge and awareness of glocal sustainability topics that exists between myself and my research participants, I took great pains to avoid undue influence in helping these self-declared "art-handicapped" students to express the concepts and emotions that they sought to represent in their art piece. I strived to only offer advice on artistic *techniques* that they might use to execute ideas that they had already decided upon themselves. No advice was given in terms of *content*. However, content and technique can never be fully separated in the artistic process; thus, total infallibility in this regard cannot be ensured, which I accept as a limitation. Ideally, a trusted collaborator might have been employed during research sessions as artistic consultant. Logistics, however, prevented me from providing participants with such an arrangement.

5. Doing the Art: An Account of Methods & the Research Process

5.1 Stage One: Brainstorming

Stage One utilised semi-structured data collection techniques, mainly in the form of interviews in both individual and focus group settings. All Stage One sessions were audio-recorded.

"Alright everyone, close your eyes. Take a deep breath, in through your nose and down to your belly. Now slowly exhale through your mouth. Inhale again, and as you do, envision *nature* in your mind. Nature with a capital *N*. What do you see? Exhale. Inhale, and look in detail at the colors and textures before you. Perhaps you even feel the sun, or a breeze. What do you hear? Exhale. Inhale, and make note of how you *feel*, there with nature like that. Exhale. Okay, you can open your eyes. Now on these pieces of paper, please draw what you just imagined."

These were the opening words of our very first Stage One research session. Feel free, dear reader, to here imagine the lonely chirping of crickets, for it would not be so different from the initial reaction this prompt received from the research participants.

This was, of course, my attempt at utilising art therapy–informed techniques (Kagin & Lusebrink, 1978; Malchiodi, 2012; Rubin, 2016) to facilitate brainstorming on topics of socio-ecological glocality. After

a bit of prodding, the four students present at this first session warmed up to the idea of interpretive expression. Markers and coloured pencils at the ready, I asked them to visually express their emotions toward, or internal non-semantic imaginings of, a series of five prompts:

1. What comes to heart and mind when you think of "nature"
2. How you feel when you look out across a natural vista
3. How you feel when you step into your favorite natural spot
4. Feelings that you or the Earth might have toward environmental degradation
5. Yakushima's connections to the wider world

Participants were then asked to explain their illustrations to the group. The purpose of these exercises was first to let the students acclimate to the idea and process of artistic abstraction, as many of them firmly assured me that they were neither skilled in nor, in fact, particularly inclined toward artistic pursuits. The second purpose of these exercises was to turn the tap and let the subjective waters of participants' perceptions of nature, climate change, and glocality flow forth. In accordance with this research's theoretical and methodological baseline of prioritising thick, holistic data, I strove to explore and elicit this emotionality throughout the research process. This exercise also served to validate those subjective perceptions whilst opening the door to their discussion and consolidation by the group, a practice that would form the core of all later research stages. Figures 2 through 6 explore a handful of these illustrations.

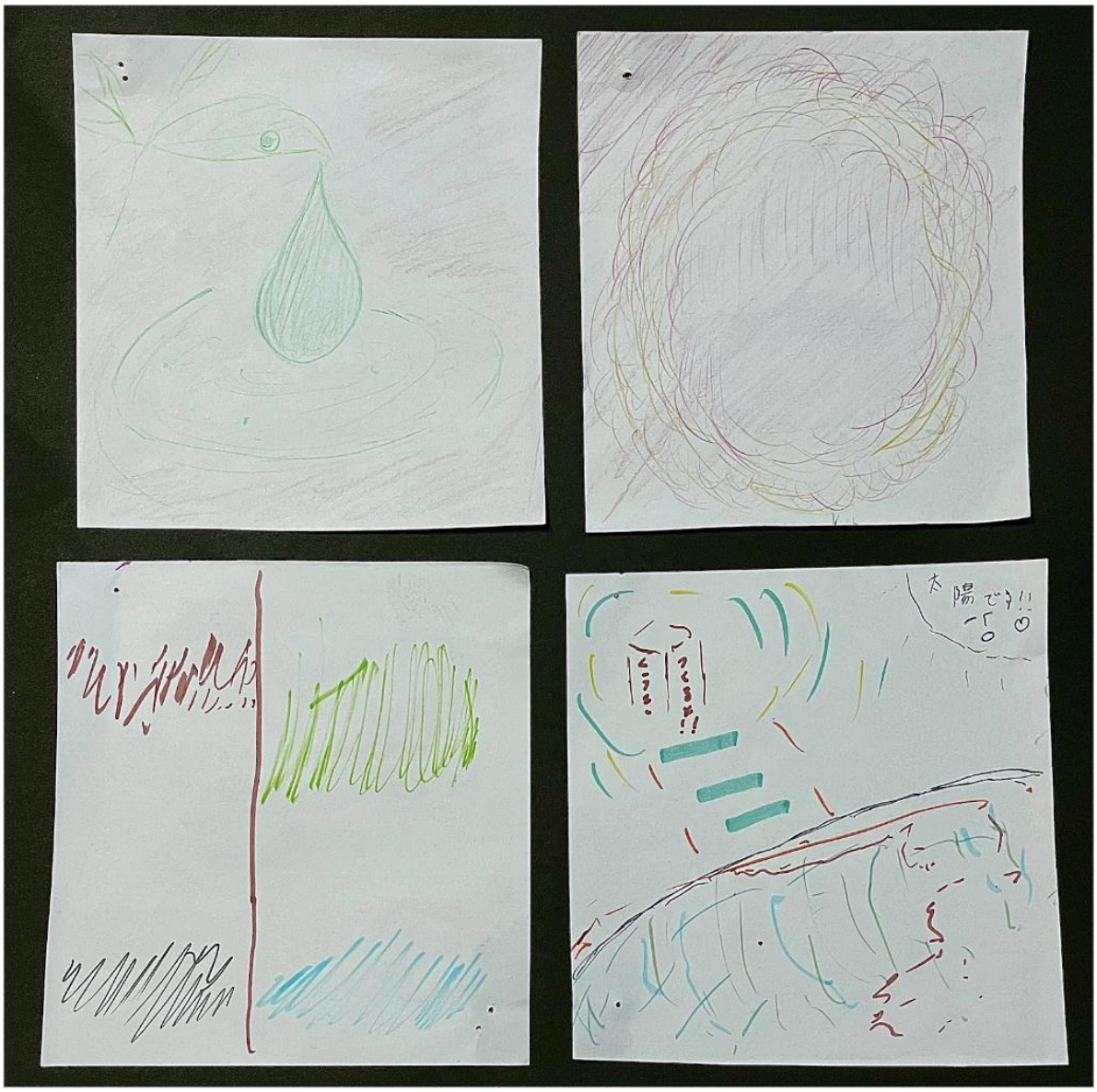

Figure 2: ***What comes to heart and mind when you think of "nature"***

One student distinctly identified "water" as a major theme. "We rely on water for everything. But access to it is severely impacted by global warming. Yakushima is no exception." Here, another touched on the negative "human" impact on nature. "The natural world including humans is grey and dead. In places without humans, it's colourful and alive."

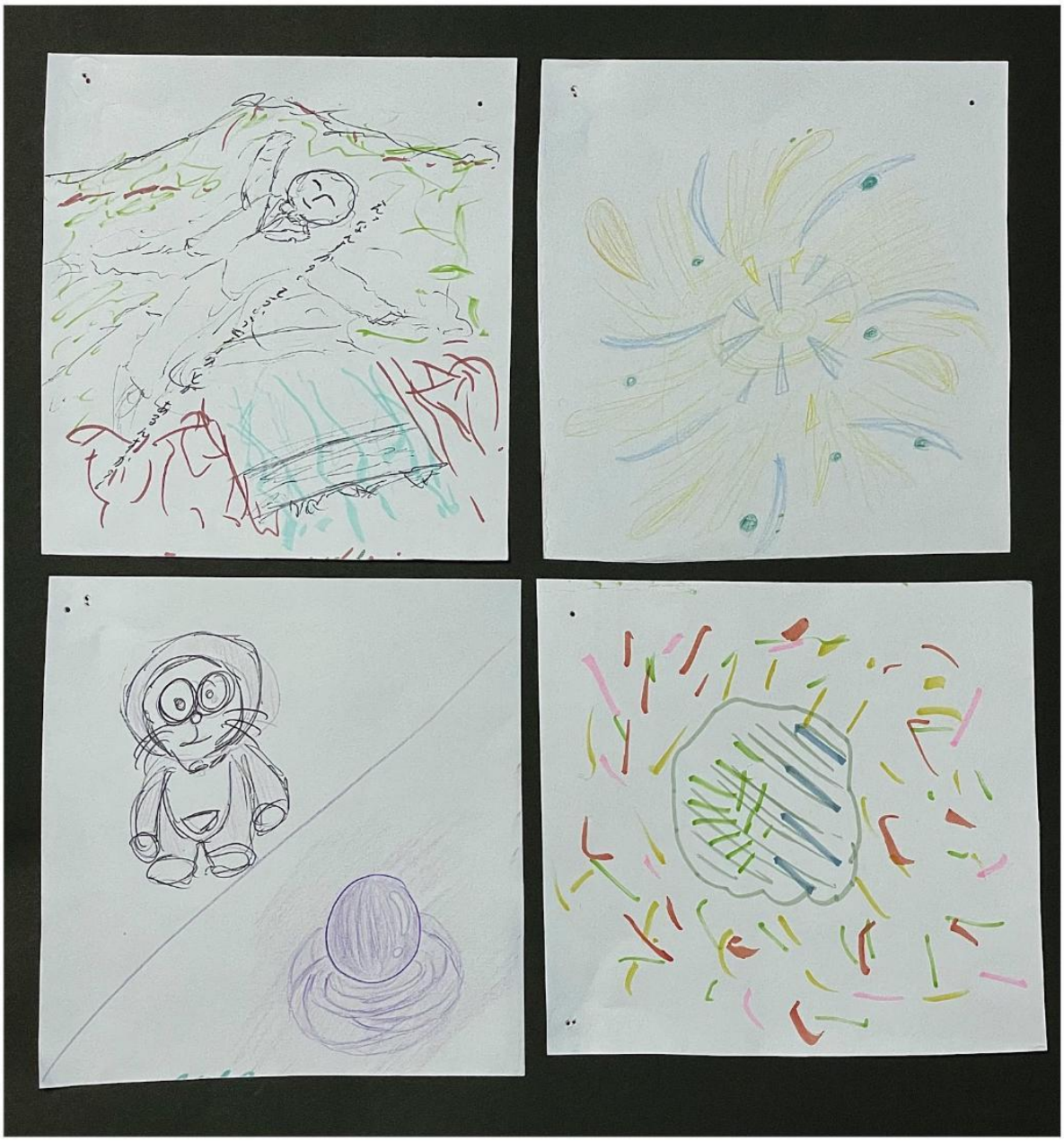

Figure 3: ***How you feel when you look out across a natural vista***

Feelings here ranged from "a dynamic, spiralling emotion" and "a calm and quiet feeling, like the center of a ripple" to "it's like I'm floating up, up, up" and "it's almost a sensory overload until I step right into it."

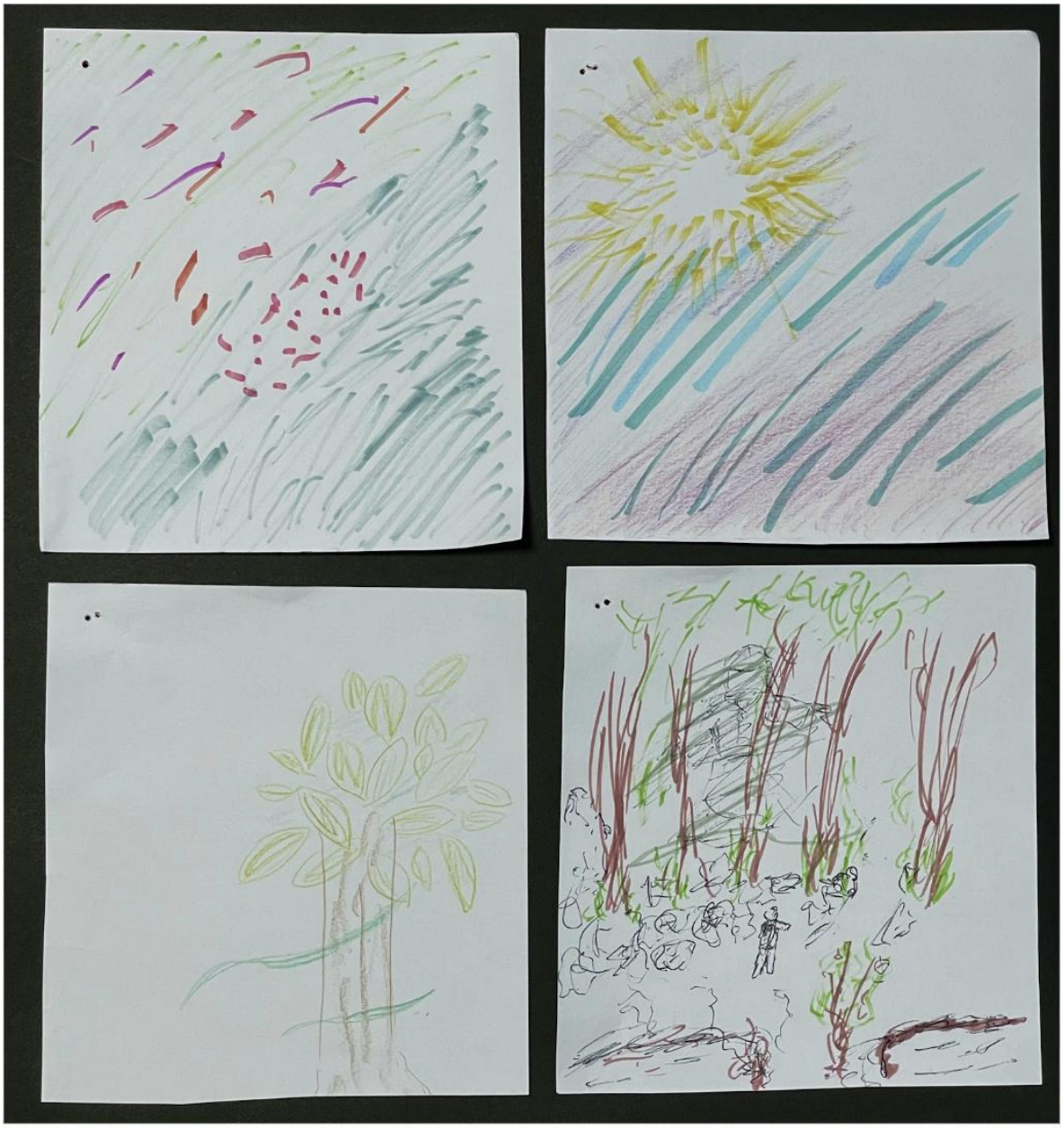

Figure 4: ***How you feel when you step into your favorite spot in nature***

Here "green" was a major connecting theme, as well as sensory perceptions like wind on the skin and the sound of birds or the rustling of trees. One student placed particular emphasis on the dual vibrancy of life and the always-near-at-hand death and decay that exists in every natural landscape: "the leaves are so bright and so green, but all around there are fallen and rotting trees, too."

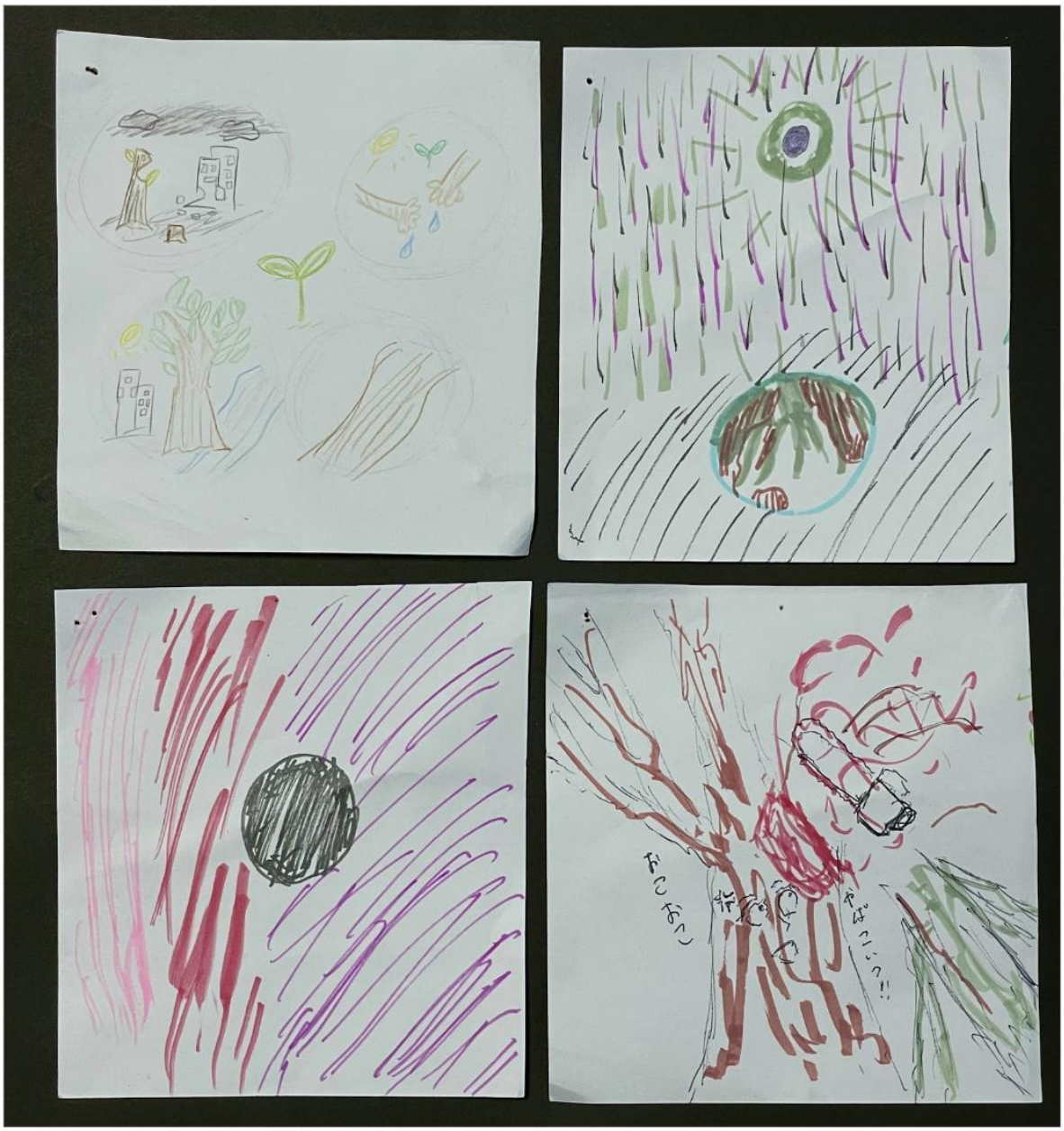

Figure 5: ***Feelings that you or the Earth might have toward environmental degradation***

Here, parallels were often drawn between nature and humans. "Humans cutting down trees is like cutting off our own limbs," one student said. Another remarked that "in the same way human skin can be burned through atmospheric ozone depletion, nature gets burned by so many human actions." One student in particular commented on his ambivalence toward the topic: "I drew the Earth as being pitch black, because it's being killed off by human action. The pink and red represent the benefits of modern life: the convenience, the ease, the technology, the luxury. But mostly it's purple—which represents my unsureness of it all, because I also understand the detriments of that system."

Figure 6: ***The quality of Yakushima's connections to the wider world***

Here, nature itself was the primary theme. "There are so many different aspects, it was hard to choose what to draw," one student said. She continued, "There are bad things and good things, places that destroy nature and places where nature is taken care of and protected, like Yakushima." Another student remarked that "Yakushima is really only known for its forests and mountains. That's how it's connected to the rest of the world. People here feel nature so deeply. Forget the rest of the world—even other Japanese people can't really understand nature in the same way as here." The three other students responded emphatically to this statement. Lastly, one student made a point to mention the mutuality of such connections: "Yakushima and the world are like two seas rippling out to meet each other. The world has so many issues, so many problems. That's why I used such bright colors. The ripples approach Yakushima, and Yakushima ripples out to meet it at the same time."

“Now, that wasn’t so hard in the end, eh?” I asked these students after the exercise was complete.

“…Sure,” came their collective reply.

This exercise was repeated to similar results with the other four Stage One participants. Once everyone had been exposed to each other’s thoughts and impressions, the real glocality brainstorming could begin.

I began by asking plainly what kinds of global connections, events, or phenomena the participants could think of. “The Olympics,” several of them answered together. Of course; the long-anticipated and long-delayed Tokyo Olympics had just concluded a month earlier. This train of event-based thinking continued, with students mentioning the World Fair, World Cup, the World Baseball Classic, and horse races.

“Okay, that’s a good start. Those are definitely examples of international events,” I said. “What about things that might hit a bit closer to home?”

Here, the students really began to think. “What about rocket launches?” one asked. The main launch station of JAXA, the Japanese Space Agency, is on a nearby island. The rocket launches are plainly visible—and audible—from Yakushima.

“You’re right!” another student replied. “There are astronauts from all over the world on the International Space Station. And the rockets they ride are *right there*.”

“How about UNESCO?” said the third-year student. “Yakushima is a World Natural Heritage Site. It’s connected to the rest of the world through its nature.”

“And other places’ nature is connected to Yakushima’s nature in the same way,” said a second-year. “I don’t know how many World Natural Heritage Sites there are around the world but I know it’s a *bunch*.”

“Oh, that’s *genius*,” said another kid. “We’ll have to remember that for the art piece.”

From there, they brainstormed a variety of glocal phenomena: Yakushima islanders who have family living abroad; the fact that Yakushima is an international tourism destination; how Japanese culture such as anime and sushi is popular in foreign countries. And then, they touched on something that I had secretly hoped, from the beginning, that they would.

“What about more… *material* connections?” a second-year student asked. “Like objects. Chains of objects.”

“What do you mean?” asked another.

“Um, for example… food,” the first student continued. “At the grocery store I see packs of meat that say the beef or pork or whatever is from faraway places like Australia or Brazil. Or fish from Norway.”

“Or bananas,” another student added. “I think most bananas at the store are from the Philippines.”

“And what does that say about glocality, exactly, besides the fact that those foods are from abroad?” I asked.

“Well,” the first student continued, “Doesn’t agriculture have an environmental impact? I remember hearing that cows’ farts contribute to global warming.”

“And there’s food loss too!” Another boy interjected. “Food that is produced around the world is wasted in Japan when people throw it away. Or too much food is made and it’s not distributed properly to people who need it.”

Ah, I thought to myself. *We have arrived.*

For the next few minutes, the students talked amongst themselves about *chisan-chishou* (地産地消), or the concept of self-sufficiency. Directly translated, this term means “regional production and regional consumption”—something of a buzzword in Japan as of late.

Someone then mentioned garbage as a major glocal issue that they feel is close at hand. “You go to the beach, and most of the garbage there is Chinese. And then, Japanese trash floats away to somewhere else, too.”

“Did you all know there are artificial islands in Tokyo Bay made of trash?” One boy quipped.

“Don’t forget about nuclear waste,” another said. “Everyone is worried about that. And it affects the ocean.”

“And clothing,” said a second-year girl. “I have heard about clothing production polluting rivers and stuff. It affects people too, because labor laws can vary from country to country.”

“Not [student name: redacted], though. His mom made his whole entire school uniform by hand,” one kid ribbed, harkening back to the concept of *chisan-chishou*.

From then on, it was like a switch had flipped in their minds; it seemed as if one could name any object near at hand, and they could extrapolate potential social and environmental impacts of that object that exist somewhere else in the world.

“I get it now—‘glocality’ is purple,” one second-year boy commented, rather off-handedly. When we questioned his meaning, he clarified: “Well, say the world is red and Yakushima is blue. Then what we’re talking about are all the purple parts.”

Along this train of thought, they continued to come up with ideas. Once they started to get a bit carried away—“What about all the paper that’s wasted when Chinese imitations of Japanese anime are made?” “Isn’t all animation nowadays digital?”—I decided to reign in their brainstorming, reminding them to double-check their brainstormed information before the next research session. They decided that so-and-so should Google this and that, and so-and-so offered to check the meat and other items at the grocery store, and they would all have a look at the tags on their clothes at home to see where they were manufactured.

Fast forward a few days to the next research session: no one had double-checked anything. So, we fact-checked then and there on our smartphones, reviewed the information gleaned from a session I had had with another group of students, and then continued to brainstorm. These conversations spilled over into a wide range of related topics, such as differences between Yakushima’s specific nature and “nature” in its most general sense; whether or not there is a human-nature dichotomy; how religion can influence one’s relationship to nature, or facilitate cultural exchange across countries and cultures; what to do about invasive species; the relationship between nature and economy, wherein Yakushima’s nature as a tourist destination drives its economic life; and hydroelectricity production on Yakushima. Over the course of six research sessions with eight participants, major glocal sustainability themes were identified and discussed. To ensure depth and continuity, participants took part in multiple Stage One sessions where possible, though logistically this was largely not the case. An interview guide consisting of predetermined, open-ended questions was used for each session, though additional questions and lines of conversation were explored in accordance with the natural currents of the conversations. Due to the necessity of splitting Stage One into six different sessions, the themes and ideas that emerged in each

Figure 7: Thematic "Vision Board"

session were shared sequentially with the next so as to validate and enrich the cumulative data with each participant's perspective. This cumulation was then reviewed and organised into a guiding "vision board" of sorts with all participants together in the initial degrees of Stage Two (see Figure 7), and later touched upon again in the Stage Three interviews. Now that the brainstorming of Stage One was complete, we transitioned into Stage Two.

5.2 Stage Two: Art-Making

"We should probably try to use materials that we can go and collect ourselves. That way the art will really come across as *Yakushima*."

This was the suggestion of one participant in the first art-making session of Stage Two. This stage utilised unstructured data collection techniques, with data taking the form of audio recordings and researcher notes of each session. Conversations here were far more fluid and free-flowing than either Stage One or Stage Three. Students mostly discussed, debated, and deliberated about what, exactly, to paint. Or draw. Or collage, for that matter—"Where do we even start?" one student lamented, when faced with the many possibilities for their art.

We first began with the material basics: a large canvas that I commissioned from a local carpenter, standing at 1.5x1m and made of local *ji-sugi* cedar (*Cryptomeria japonica*). Yakushima is—and has been, historically—famous for its cedar trees (杉, *sugi*). Specimens of an estimated age above 1000 years old that can be found growing at an altitude above 500m are known as *yaku-sugi*. The oldest of these, estimated to be a staggering 7000 years old, is the environmental tourism darling of the island: Jomon-sugi. Cedars less than 1000 years old are known as *ko-sugi*, while those of a more modest 50 to 60 years are known as *ji-sugi*, and their cultivation for use in construction and the craftsmanship of fine goods and souvenir trinkets is a prime industry on Yakushima (Yakushima Environmental and Cultural Foundation, 2000:50–51).

The students then reviewed the glocality themes that emerged in Stage One, and began to draw up rough sketches of ideas. Through the collaborative process of discussing and consolidating everyone's ideas into a single art piece—having to pick and choose what themes to highlight, and what could be omitted—the aspects of sustainability and glocality which took precedence in the students' collective thinking began to make themselves gleanable.

"Okay, so, first of all, let's draw people holding hands," suggested one participant.

"Dude that is so *cliché*. And nature needs to be in there, remember?"

"Well we're drawing *connections*, right? People's hands are *connected*." [3]

"I think we should just draw the whole Earth," another student said. "How about half is a globe and half is Yakushima?"

"That could work," replied another. "I think you actually might be onto something."

Thus they began to sketch out a composition. I shall refrain from going into further detail of their artistic planning and execution here, as that dialogic process is contained in the audio recordings that comprised the raw analytical data of this research, which led to the final codes presented in Chapter 6. It should be noted that, in the end, the students did in fact utilise environmental materials which were close at hand *extensively* throughout their art. These materials were gathered during a weekend 'field visit' research session, after the thematic imagery to be expressed in the art piece had been planned and the composition of the piece had been decided upon.

All in all, Stage Two consisted of fifteen research sessions of approximately two hours each, spread out over the course of one month between November and December 2021. See Figure 8 below for a selection of photos from this creative process.

[3] One might note here that the phrasing for "to hold hands" in Japanese literally is "to connect hands" （手を繋げる）

Figure 8: A collage of photos from the art-making process

Students collected, and later laboured to sort, a wide variety of seashells, sea glass, coral, sand, dirt, litter, and local flora to use in their boundary object, which they created over a one-month period.

5.3 Stage Three: Reflection

Once the actual art piece was complete, we let it stew for about a week—I wanted to give the students some time away from the project so its themes and information could seep in a bit deeper. Then, it was time for the final interviews. These were semi-structured and focused on participants' subjective interpretation of the piece as it pertained to sustainability topics. A total of fifteen individual interviews were conducted, with several Stage One and Two participants being omitted due to scheduling difficulties. I also interviewed several students who took part in neither Stage One nor Stage Two research sessions. These interviews acted to expand the scope of data beyond the students who had already brainstormed sustainability and glocality themes for the art piece. They also served to illustrate the potentials of artistic boundary objects to facilitate sustainability-related dialogue amongst separate groups of people (Cash & Moser, 2000; Star & Griesemer, 1989).

Like the preceding research stages, all Stage Three interviews were audio-recorded. Interviews were structured in a way that allowed reflection of themes present in the piece and ideas that had lingered throughout the artistic process, as well as exploration of other socio-ecological glocality themes that participants did not perceive to be expressed in the final art piece.

Finally, all notes and audio recordings of all research sessions and interviews were transcribed and coded. During initial coding, salient emergent themes were noted, and were then reviewed again later and re-organised if necessary in subsequent rounds of coding. Transcriptions were in Japanese, with coding taking place without immediate translation. Translation into English occurred in the latest possible stages of data organisation. Qualitative work involving translation necessitates a plethora of interpretive decisions and cross-linguistic problems (Riessman, 2008); for me, achieving faithful representation of the emotional nuance present in participants' statements was of paramount importance. As such, I sought to sit in the original language of the data for as long as possible, and analytically worked primarily from the audio recordings rather than their later transcriptions.

The results of the cumulative narrative and dialogic data is presented and analysed in Chapter 6, alongside the final "boundary object" piece of collaborative art that was created by the research participants.

6. Dialogue:
Findings & Analysis

In this chapter, the symbolism and meaning of the final boundary object will be discussed through the codes which materialised via students' dialogue throughout the research process. The significance of these codes will, throughout the text, be cross-referenced with and analysed through both our theoretical framework and the backdrop of Yakushima's ESD goals. Thus shall Research Question 1 as posed in Chapter 1.3 be answered. Reflections on the dialogic process of this participatory art project are also made at appropriate instances of their co-catalyst synthesis with codes. The completed boundary object is first presented in Figure 9 below. It depicts a globe against an oceanic backdrop, with the spherical Earth replaced by an aerial view of Yakushima. Students wished for the primary motif of the piece to communicate *interconnectedness* in obvious and explicit terms. This is, of course, consistent with notions of glocality and sustainability as we have discussed extensively thus far. Within this overarching motif, there exist on Yakushima several different dimensions of student-identified interconnectedness, which are discussed in each sub-chapter.

Figure 9: The completed boundary object

6.1 Nature as Lowest Common Denominator

"The people of Yakushima have deep connections with the island's nature. And Yakushima is connected to the outside world through that nature. Nature exists everywhere… so does pollution, litter, and environmental problems," one student mused.

All participants in *all* research stages identified *nature* as the primary factor of Yakushima's glocality. As we touched on in Chapter 2, this nature forms the basis of Yakushima's identity and the driving force of its culture and economy. As one student put it, "Everything on Yakushima revolves around its nature."

This nature was primarily expressed through the application of dried leaves, flowers, and other flora—which the students collected from around town and in the forest, and then prepared themselves—onto the globe portion of the boundary object. "Yakushima is so abundantly *green*," another student told me. "And in the face of pollution and climate change, *we've* got to protect that green, like other places need to protect *their* nature."

Participants' strong and deeply-held association of Yakushima with its nature, and their perception that it is this more than anything that connects Yakushima to the wider world both now and in a sustainable future, fits neatly into the synergy between sense-of-place and glocality required for a sustainability-oriented political ecology as discussed in Chapter 3.

Students also decorated their Yakushima globe with a world map, further emphasising the glocal nature of Yakushima (see Figure 10 below). Upon each continent, they applied different varieties of flowers. This served several purposes: foremost, to express the diversity of humanity. "Each continent has its own type of flower, representing cultural and ethnic regions around the world," one student explained. In addition, the petals of the endemic *tsuwabuki* plant (*Farfugium japonicum*) were applied to each and every continent. This plant is ubiquitous on Yakushima, often growing on roadsides and near streams and rivers. Stems of new sprouts are often used in local traditional cooking, most often as *nimono* (foods simmered in broth with soy sauce, sake, and brown sugar). "The *tsuwabuki* represents the piece of Yakushima that people from around the world take back home with them after they've visited," the same student continued. "It can also represent Yakushima's people, who travel and live abroad, too." We might recall here that "diversity" is the first of the six educational aims of Japan's nationwide ESD framework (see Chapter 2) (Japanese National Commission for UNESCO, 2022).

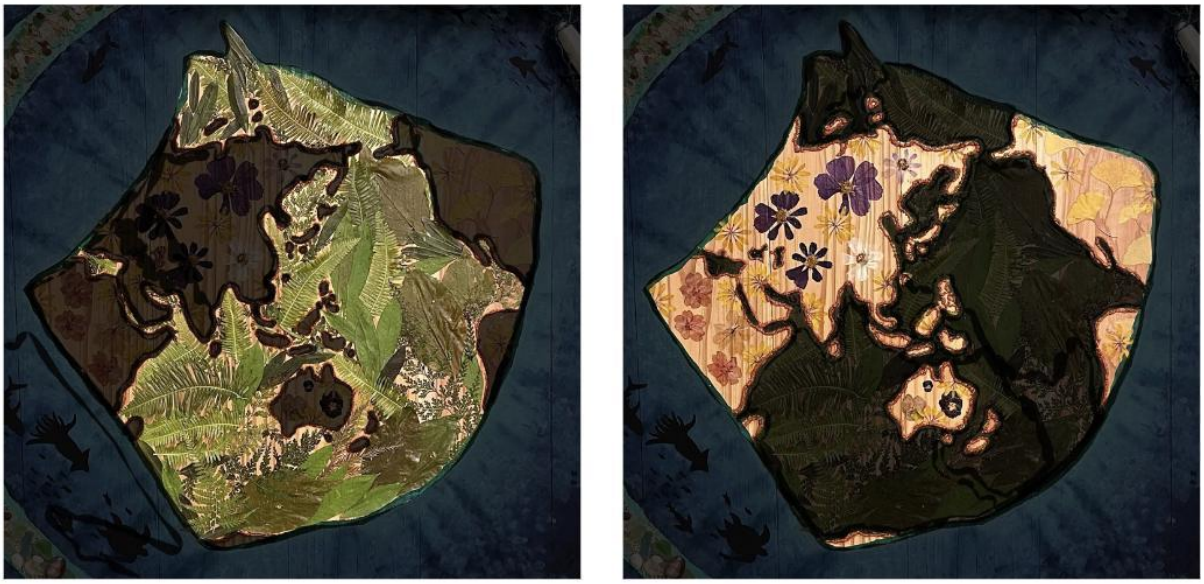

Figure 10: Boundary object detail—the world map imposed onto Yakushima

Note here the usage of endemic and non-endemic plant species on the piece.

Participants' usage of flowers also carries with it a more literal significance: to express the phenomenon of species migration. "A big issue on Yakushima is that of introduced species," an environmental-course student mused during one of our conversations. "Like how those white-flowered *hittsukimushi* are growing absolutely *everywhere*, and they stick to your clothes and spread and just take over. Or how millipedes are a big problem on the south side of the island, but we didn't even have them until a few years ago. Oh and *tanuki*, too [*Nyctereutes viverrinus*; Japanese raccoon dog]. Didn't someone bring one to Yakushima as a pet? And now they're in the mountains causing problems. I think we can use these different species of flowers to represent introduced species on the island." The other participants present at that art-making session expressed their admiration for the environmental-course student's suggestion, and responded in openly thoughtful ways.

This thread of conversation then spun into notions of *how* species are introduced, and the problematisation of this phenomenon—a notion we will return to in subchapter 6.3. This instance demonstrated clearly to me as an educator and researcher the dialogic power of participatory art. Had that student, with his specific awareness and knowledge, not been there, who knows if the environmental issue of introduced and "invasive" species would have even been discussed? The other students then, of course, mentioned this symbolism of the dried flowers in their explanations of the piece to their non-participant classmates, increasing the scope and opportunity for dialogue on a sustainability topic even more.

Reiterating this idea of "nature" as the lowest common denominator between Yakushima and the wider world, one student also sagely remarked to me that, "All of the glocal issues that we talked about during your research are kinda simple once you really think about it. It's just about changing people's relationship with nature. *And* people's relationships with each other. Don't you think so?" Indeed, I do. So do a plethora of researchers that fall within the scope of human ecology (Garrard, 2004; Hailwood, 2015; Norgaard, 2011; Tsing, 2012; Vogel, 2015; Whyte, 2017). And so does Yakushima's ESD framework, if its six indexed educational aims (diversity, interdependence, limitation, fairness, cooperation, and responsibility) are to mean anything (Japanese National Commission for UNESCO, 2022). Going back to our decolonial political ecology, we are, in fact, canonically pursuing a revamped environmental ethic (Escobar, 2007) in pursuit of "sustainable society-building" (Yakushima Board of Education, 2021).

6.2 Water as Connector

Within Yakushima's nature, participants identified "water" as a major theme. "The ocean is like the bridge from the world to Yakushima. Literally, because you have to arrive by boat, and… what's the word? Symbolically? Because the water *flows* to and from Yakushima—like people, and money, and things."

Yakushima's aqueous characteristics are, actually, a major point of the island's ESD configuration. "Island of Water" is a phrase one often encounters in the course of one's acquaintanceship with Yakushima. This is due to several factors, including its outrageous amount of annual deluge (in excess of 8,000mm in the mountains (Yakushima Environmental and Cultural Foundation, 2000: 23)), its high rate of hydroelectric power generation (currently accounting for 99% of the island's electricity needs (Yakushima Municipality, 2020b)), and the island society's long reliance on the ocean for its nutritional and economic sustenance (Yakushima Environmental and Cultural Foundation, 2000: 25–32). As we will explore more in the next subchapter, the ocean is also the primary channel for what participants perceive to be the most visible environmental issue both on Yakushima and in the world—trash and waste management—materialises.

The ocean also acts as a medium for many of humanity's adverse effects on non-human life, according to participants. During brainstorming, they at first did not plan on painting people or wildlife due to limitations of their artistic skill. However, a student suggested that they simply paint silhouettes, thus opening the door for greater discussions of Yakushima's glocal ecological issues.

"We *have* to put sea turtles in the picture. Yakushima's known for the sea turtles that nest on Nagata Beach, after all. And you guys have all seen those videos of turtles caught in plastic nets or with plastic straws up their nose right? So sad and *grotesque*, no? We should put sea turtles in there."

Figure 11: Boundary object detail—oceanic theme
Note the human figure on the mid-left.

Another student: "I want to draw a lot of fish, because the meat that Yakushima's people ate way back when was mostly fish. And it can be more general commentary on overfishing around the world, too."

While painting these silhouettes, students were abuzz telling each other stories of strange sea life they've encountered while swimming or snorkeling in the summer, and argued with one another about what species are quintessentially Yakushima and which are more on the basic side. My research notes from this day read: "a moment rich with the fragrance of sense-of-place–deepening knowledge exchange under the guise of casual teen banter."

6.3 The Preeminence of Trash & Waste

All participants in the brainstorming and art-making stages of this research collectively identified trash—particularly oceanic litter—as one of the most visible and pressing environmental issues that Yakushima faces. "The ocean links all land, so it's a shared problem. And the trash itself is international too. A lot of the trash on the beach has Chinese or Korean writing on it." Another student remarked that "Even though this trash was collected on Yakushima, it's not just Yakushima's problem. It's everyone's problem." This notion of shared responsibility appeared often in dialogue with participants—an idea we shall explore further in subchapter 6.4.

Highlighting litter in this artistic boundary object also provided the opportunity to repurpose actual trash into a piece of art, something that Hawkins commends as "material re-imagination" of problematic rubbish into a "politics of display" which can act as commentary both on the problem of litter itself and on the reflective treatment of discarded material in the everyday versus as a piece of art (Hawkins, 2010:813–815).

Figure 12: Boundary object detail—sea debris
Utilised rubbish consisted primarily of fishing nets.

The rubbish used in this piece naturally prompted reflections on consumption and waste. The "three Rs" of reduce, reuse, and recycle were a constant point of conversation with participants. "There's just too much trash," one student said to me, exasperated. "They *make* too many plastic bottles, and we *use* too many plastic bottles, and too many people aren't disposing of their trash properly. There's just too much *stuff* that becomes trash."

Whilst the discourse on this topic is rife with varied opinions on, for example, how much responsibility for recycling actually lies with the consumer in relation to industrial production, corporate social responsibility, and the capacities of state-run public waste management systems (Espocito et al, 2020; Khetriwal et al, 2009), the active discourse itself is nonetheless a vocal and essential corner of sustainability thinking, with near-universal critical consensus that the industrialised world desperately needs to produce and consume *less* (Dunlap & Jakobsen, 2020; Mann & Wainwright, 2018; Redclift, 2005; Parrique, 2019), with Japan as no exception (Global Footprint Network, 2020). Yakushima's ESD acknowledgement of this facet of sustainability in its designation of "limitations" as a core educational topic follows this consensus.

In a similar vein to introduced species being considered "invasive" or not, however, students realised that there are aspects of arbitrariness in the designation of some items as "trash" versus others. "Is sea

glass considered trash?" one student posed to the rest while hot-gluing the ocean-polished shards of glass to the boundary object. "Ahh," another replied. "I guess so, yeah. It started out as litter. But now it's pretty so it's ok? I guess?"

Students were equally as thoughtful when it came to considering the driftwood they collected on the beach for use in the bottom portion of their art as decoration (see Figure 12). "It's kind of like trash when it's on the beach, because who really needs this much driftwood piling up on the sand? But it's not exactly *trash* in the same way these nets and plastic bottles are." Such threads of conversation further reflect the intricate complexities of *interconnectedness*, but this time rather than focusing on the connections between Yakushima and the world, more general environmental philosophical questions concerning the boundaries between humanity and nature were coming to light.

The type of trash used in the piece also carried with it implications for viewers of the art. The usage of fish-industry netting, a common type of litter found on coastal areas on Yakushima, spurred one participant to reflect on the scale and progression of sustainable transformations. "I think sustainability doesn't have to be this big overwhelming thing," she said. "It can start on a small scale, too. Like if fisherpeople from just one village in Yakushima used more environmentally-friendly materials in their work, I wonder how much this plastic netting litter would be reduced… And then other fisherpeople on Yakushima would hear about it, and if *they* changed their materials too, then that's like, already an exponential change. I think changes like that can spread so quickly across the country and the globe." Reflections such as these, on how to confront the climate crisis both practically and emotionally, constitutes the last major theme identified from dialogue with participants.

6.4 Facing Reality, Responsibility, and Hope

Conversations on the climate crisis and a sustainable transformation are centered on ideas of responsibility. Which sectors and countries emit the most greenhouses gasses (Ge et al, 2020), how those emissions are linked to wealth and profits (Roberts, 2013), and how material historicity implicates that wealth to social and environmental injustices (Escobar, 2007; Hornborg, 2013; Malm, 2016; Redclift, 2005; Tsing, 2012) are essential dimensions of sustainability discourse. Where Yakushima fits into this equation is a point of deep consideration for the island and its youth. After all, as we discussed in Chapter 3, Japan as a major world economic power is plainly culpable in the unsustainable resource- and labour-consuming nature of neoliberal global "modernity" (Qi & Zhang, 2008; Suzuki et al, 2010). However, the technological and socio-industrial forces that drove the exponential development of Japan's metropolitan areas in the latter half of the 20th century are the same forces that have left rural areas of the country, such as Yakushima, flailing in the rough and wide-open seas of demographic change. These rural areas have seen steady rates of depopulation and ageing as young people flock to the wealth and opportunity of large cities—consequently, rural abandonment and collapse are pressing phenomena that

both the central and regional governments of Japan have been increasingly grappling with for decades (Feldhoff, 2012; Odagiri, 2017). Students' consolidation of both Japan's contributions to the modernity-bound climate crisis as well as the detriments of that crisis which meander their way to this small mountain-in-the-sea is reflective of an exceedingly pragmatic "border thinking" attitude toward climate change and environmental issues, which informs how students conceptualise responsibility toward climate action. While they may not have expressed it in quite as explicit terms, participants were keenly aware of how Yakushima's sustainability reality implies these notions.

"The trash at the beach isn't *just* from abroad. Japanese trash is there, too."

"Yakushima might be the island of green, but everyone is still driving cars all around and emitting CO2."

"Yakushima may have all this nature and may lack a lot of the conveniences of a big city, but it's not like we don't have modern technologies. We're using a lot of plastic, too. We're driving around gas-powered cars, too."

"Yakushima is a special and famous place because of its nature, but its population is decreasing like other rural places in Japan. Yakushima's not exempt from those kinds of problems. How much will that change, even if Yakushima becomes 100% perfectly environmentally friendly?"

The word that came to my mind while listening to these musings was "sagacious." Participants showed an astute and un-idealistic attitude toward their recognition of the realities of sustainability issues on Yakushima, a phenomena I noted as a "positive foil" to Norgaard's reflection that people "must struggle to imagine the reality of our current situation"—that situation being the climate crisis—when there is geographic and emotional distance to environmental degradation (Norgaard, 2011: 223). Participants' deeply-rooted senses of place clearly orient them toward these realities:

"Yakushima's not just beautiful nature. There's dirty nature, too, like all this sea trash. We have to recognise the good *and* the bad."

"When you're flying into Yakushima on the airplane, the ocean looks so blue and beautiful. But we have to admit that there's a lot of trash there, too. It's important to face the truth of the situation."

"Everyone talks a big game about Yakushima's nature, but environmental issues are right in front of our faces here as well. People need to know about problems in the first place in order to solve them."

I asked participants, then, how they felt about scales of impact in confronting the climate crisis. Most participants, like the one who waxed hopeful about the exponential potentials of environmentally-friendly actions in subchapter 6.3, were firm in their assertion that collective action beginning with each and every person doing their part is a sure path to a sustainable future, despite the challenges that might entail. Sense-of-place notions also appeared here, with the idiosyncratic power of Yakushima often being cited as a motivating factor in environmental action.

"We have an obligation to Yakushima, because it's *our* island. We have to make an environmentally-friendly society here, first."

"Yakushima's our home. You wouldn't live in a dirty house. Why would you live on a dirty island?"

"We've got to be able to address our environmental problems ourselves," one student said. "And we have to be able to trust other places to do the same. Yeah, there's Chinese trash on the beach. But it's here now, so *we* have to clean it. For the beach to *really* be clean, they need to stop littering, but so do we. If we all do right to take care of our own little corners of the world, then surely the situation will improve."

"I don't feel hopeless about environmental degradation. I know the situation is bad, but I really think it's possible to confront environmental problems. We don't really have any other choice."

Still, ambivalent emotions were not absent from these dialogues.

"I feel torn about global warming and pollution. I know it's bad, and it's shameful to treat nature like that. But there are *so* many convenient things about the way we live now. I don't know how to feel."

"I know the environment is important. But I wish I didn't have to think about it *all the time*. I just want to live a normal life. I don't want to worry about all these environmental problems."

"Confronting environmental problems is important, I know," the bottle-yeeter told me, his voice and facial expression stained with exasperation. "But all we hear is the *bad* stuff. It makes me want to just give up and buy whatever I want,eat whatever I want, and make lots of money and just run into the arms of capitalism, because if everything is so bad, then what's the point? You understand, right? I want to hear more *positive* things about the environment. I want to hear about *solutions* to environmental problems. I think everyone needs to hear more of that in order to feel more motivated."

7. Contemplation: Research Implications

These wide-reaching threads of conversation that were spurred on by the artistic boundary object, and the four codes of *Nature as Lowest Common Denominator*, *Water as Connector*, *The Preeminence of Trash & Waste*, and *Facing Reality, Responsibility, and Hope* that they were distilled into, carry with them several implications for both the students' ESD curriculum and the potential for participatory art to catalyse that curriculum, the latter of which answers Research Question 2 as defined in Chapter 1.3.

7.1 Time to Tinker with the ESD Curriculum?

Firstly, the breadth of knowledge covered by the student's ESD curriculum is in dire need of increased glocality. As discussed in Chapter 3, the glocal contextualisation of culture and knowledge is absolutely essential in the cultivation of a sustainability-oriented socio-environmental ethic. The sense-of-place possessed by research participants as communicated throughout this project was palpable, which bodes well for the goals of Yakushima's ESD. However, both students and school administration admitted that the curriculum as it stands does not adequately touch on global themes and connections when it comes to environmental education.

"We really don't talk about this kind of stuff in class," one student reflected at the end of the research process. "So doing these types of projects and activities is super important, I think."

"If it weren't for this project, I would not have even thought about some of these topics," another said. "You just don't really think about how your everyday life is connected to the rest of the world, you know? And we have never learned about *glocality* in school."

An environmental course student, too, had remarks about how to synthesize glocal knowledge by orienting specific place-based knowledges on Yakushima in relation to global connections. "I think we all learned a lot about Yakushima's glocality through this project," he told me. "If anything, we could have included even *more* unique information about Yakushima, like the *sangakushinkou* beliefs of Yakushima's past, which we learned about in the environmental course. We could connect those to similar beliefs from other cultures." This *sangakushinkou* (山岳信仰) that he mentioned may be translated as *mountain worship*. It describes the religious consideration of mountains as sacred, supernatural places. This religious treatment of nature as sacred has seen a sharp decrease in Japan throughout the years in conjunction with its journey to "modernity." As one student scoffed, "Who nowadays *really* thinks gods live in the mountains? Japan is a *modern* country now. Smartphones are

our religion, haha." Sidestepping whatever problematic nuances that might exist along that line of thinking, the cultural treatment of nature begotten by beliefs such as *sangakushinkou* is an important reference point for sustainability thinking. A plethora of scholars and thinkers have recognized the value and importance of traditional and indigenous perspectives—in other words, subaltern perspectives marginalised by colonial "modernity" (Escobar, 2007)—in the reassessment of humanity's relationship with nature in the face of the climate crisis (IPCC, 2022: 29; Kimmerer, 2013; Todd, 2016; Whyte, 2017). These types of perspectives are an essential component of the local knowledges that place-based pedagogies seek to foster and affirm. As such, it is important for Yakushima's ESD to further emphasise these knowledges, not only saturating its curriculum with them, but also contextualising and communicating their importance relative to the glocal scope of the climate crisis.

Aside from the glocal *breadth* of students' ESD, glocal *details* of environmental issues also need assessing. Throughout the research process, participants widely lamented their lack of detailed knowledge on sustainability issues. The Stage One brainstorming sessions clearly demonstrated that, when presented with the opportunity, students could easily come up with potential instances of glocal environmental issues. The overwhelming sentiment, however, was one of unsurety: "I *think* such-and-such industry is highly polluting"; "I *feel like* I've heard about XYZ"; "I'm not sure, but…" were phrases uttered at every instance of brainstorming, thus necessitating profuse fact-checking and verification. This continued through to the final reflections, when students often plainly admitted to me that they simply did not have enough knowledge:

"I know there are way more environmental issues besides trash on the beach, but I just don't know what they are," one participant said to me.

"The more I think about it, the more I realise how much I don't know," another admitted.

"We just *don't* learn about these things in class!" one student (who did not participate in the art-making) exclaimed to me when I pressed him, perhaps a bit too insistently, to think of sustainability issues that he felt *weren't* expressed in the art piece.

Whilst the foundations for glocal sustainability thinking is clearly present for students, the inclusion of more detailed glocal information in their ESD curriculum would only benefit them by 1) reinforcing their place-based knowledges, and 2) more firmly orienting the pedagogy of place that Yakushima's ESD pursues in the direction of sustainable society-making characterised by rational, decolonial environmental ethics.

Just as well, this information need not be limited to the pessimistic details of socio-ecological degradation—though, as many participants reaffirmed, confronting the stark realities of the climate crisis is an essential part of sustainability thinking. Equally as important are the *positive* and *motivating* stories and information about the climate crisis. This is explicitly demanded by the students themselves (see subchapter 6.4), and is also increasingly recognised as an essential component of a sustainable transition. Norgaard (2011) speaks on the importance of sending a hopeful, motivating message when educating about climate change, lest emotional distance and despair discourage people from engaging in climate-positive behaviour. Donna Orange (2017) also affirms that the next step towards sustainability transformation, after empathy and compassion, is hope.

One participant reflected on the special position that *students* occupy in initiating climate action and environmentalism. "I think a lot of things that adults do are considered obvious or are taken for granted. Like, of course adults are organising beach clean-ups. That's what you're supposed to do. But when high school or junior high school students do it, people are always inspired. Like when we made those crackers at school using the parts of fish leftover from *sababushi* [dried, smoked mackerel; a prominent local industry on Yakushima]. All we did was make and sell crackers. It wasn't even a big deal, but they covered it on the news and everything. So, I think it's easy for students to publicise environmental activities, and in that way we can inspire people to act, too." We might remember here the correlation between sense-of-place, which dynamically inspires and is inspired by these types of place-based activities, and pro-environmental behaviour, including galvanising communities to take environmental action (Adams et al, 2010; Vaske & Kobrin, 2001).

All facets of these realistic-yet-hopeful lines of thinking elucidated by participants' dialogue harken back to the "staying with the trouble" approach (see subchapter 3.2) advocated by Haraway (2016). The multidimensional story-telling of situated knowledges—the stories Yakushima's youth are told (and tell themselves) about their immediate environment, with information gleaned through both their ESD and their personal lived experiences—is, as we explored in Subchapter 6.4, grounded firmly and simultaneously in both the hopeful possibilities of Yakushima's sustainability trajectory as well as the troubling aspects of environmental issues present on the island. Staying with the trouble, indeed.

7.2 Participatory Art to Spark Conversations on Sustainability and Glocality

Our second research question asked how participants' artistic expression of socio-ecological glocality on Yakushima, and its use as a boundary object, facilitates conversations about and conceptualizations of socio-ecological glocality.

Along the course of this research, the primary strength of the participatory art process was its power to initiate dialogue. This is consistent with the findings of other participatory art–utilising research within

the realm of human ecology as discussed in Chapter 3.2, including Mjaaland (2009), Zurba & Berkes (2014), Thomsen (2015), Johansson & Isgren (2017), Härkönen & Stöckell (2019), Jokela (2019), and Raatikainen et al (2020).

Students engaged in constructive dialogue with each other throughout the entire research process, especially in Stage One. The focus that this single artistic composition brought to the table forced students to consolidate their widely varied opinions and knowledges on socio-ecological glocality into a cohesive conceptualisation. The back-and-forths of knowledge-sharing, sprinkled with phrases such as "Did you know about this-and-that" or "I hadn't heard of such-and-such before!" as they were, indicated a high level of *cooperative* thinking. Students navigated a *diversity* of knowledge and opinion, *depended* on each other to supplement one another's knowledge, identified *limitations* on content that existed in the compositional scope of their art, *fairly* discussed ideas and opinions together in deciding what concepts to express in the piece, and parcelled out artistic *responsibilities* to one another throughout the process. As such, not only was the topical matter of the artistic boundary object an embodiment of the six core perspectives of Yakushima's (and wider Japan's) ESD curricula—diversity, interdependence, limitation, fairness, cooperation, and responsibility (Japanese National Commission for UNESCO, 2022)—but so was the artistic process.

As discussed in subchapter 7.1, a number of students noted that engaging in this participatory art project opened their eyes to knowledges about Yakushima's socio-ecological glocality that they felt they otherwise would not have encountered. This was true in art-making participants' interactions with non-art-making participants as well. When the former asked the latter to explain in their own words the symbolisms and meanings that they perceived in the boundary object during Stage Three interviews, sustainability issues that the art-making participants had not anticipated often materialised. For example, the art-making participants of Stage One and Two made no mention of coral bleaching or coral reef die-off, a major ecological side-effect of climate change (Hancock, 2022). They simply utilised coral they gathered at the beach as a decorative element of the globe's stand in the art piece. When an interviewee in Stage Three, upon viewing said decorative elements, mentioned how coral bleaching is a problem not just for famous locations like the Great Barrier Reef but also for a place like Yakushima, an art-making participant marvelled at how they "totally missed" that particular environmental problem whilst composing the piece.

Similar instances happened in the opposite direction as well. When a Stage Three interviewee commented that they thought the lack of human figures in the art piece did not adequately reflect the critical role humans play in the environmental issues of sea litter and sea-life die-off, an art-making student responded by pointing out that there *is*, in fact, a human figure in the piece: a scuba diver swimming amongst the fish, turtles and octopi. The pair were then able to further discuss where they

thought the importance and responsibility of humans lay in addressing the climate crisis, and in what ways the climate crisis affects humans in conjunction with oceanic wildlife.

Additionally, questioning Stage Three interviewees, regardless of whether or not they had participated in the brainstorming and art-making stages, about what sorts of sustainability topics they felt were *not* addressed by the boundary object elucidated a number of environmental topics that otherwise saw minimal treatment by participants during stages one and two. These included animal extinction more broadly; space debris floating in the upper atmosphere; issues of freshwater around the world; and perhaps more glaringly obvious, the issue of CO2 emissions. I was, in fact, personally surprised at how *little* the topics of atmospheric carbon and carbon sequestration appeared in participant dialogue throughout the research process. The altogether passing ways in which students mentioned CO2 and emissions in relation to other, perhaps more immediately visible environmental issues (such as sea litter and animal extinction), gave me the distinct impression that they had not fully connected the realities of the fossil-fuelled capitalist machine (Dunlap & Jakobsen, 2020; Malm, 2016) to the climate crisis writ large. This thread was not untwined adequately in the course of this project, however, and would require additional research in order to make more firm conclusions.

Overall: as a researcher, the window that participatory art opened into the nuances of participants' sustainability and glocal thinking looked out across a splendid and fascinating view of each and every individual student. In the words of anthropologist Keith Basso, who wrote on the significance of place-names in the eco-culture of the Western Apache peoples, "the self-conscious experience of place is inevitably a product and expression of the self whose experience it is, and therefore, unavoidably, the nature of that experience (its intentional thrust, its substantive content, its affective tones and colorings) is shaped at every turn by the personal and social biographies of those who sustain it" (Basso, 1996: 107). These biographies, small little snippets only made visible to me throughout the creation and contemplation of a singular piece of art as they were, seemed to carry a deep significance not only to me as a researcher working with youth whom I care deeply about, but to the students themselves. Their joint reminiscing about place-based memories, such as the time so-and-so slid down a rocky cliff one summer day at the river, or the autumn night some students marveled in wonder at a night-time rocket launch, coupled with their conversations with each other about notions of responsibility and hope in the face of climate change were, in particular, laden with mutually reassuring and uplifting emotional tones, with students often using humor and banter to recalibrate the deep ambivalence and complicated emotions they expressed regarding the topics of climate change and sustainability.

The fact that participatory art, in all of its stages—brainstorming, preparing, making, presenting, interpreting—offered so many opportunities for novel conversations and conceptualisations of socio-ecological issues of glocality amongst participants reinforces this thesis' Chapter 3.2 assertions that art

and the emotionality-laden poetics that it carries with it are wholly essential in critically place-based pedagogies such as that of Yakushima's ESD. The students themselves seemed to agree: "Can you convince the teachers to include more activities like this in the curriculum, Andrew?" one student asked me. "It actually managed to be both educational *and* interesting." What struck me regarding this statement is that it was, in fact, the participants themselves who educated each other in a way that sparked interest and enjoyment in the socio-ecological glocality issues at hand. All I did was provide the paint.

8. Cleaning Up: Conclusions

This thesis first theoretically explored how the Education for Sustainable Development (ESD) curriculum on Yakushima fits into the academic notions of sense of place and radical place-based pedagogy (Gruenewald, 2003; Ruitenberg, 2005). These pedagogies are conducive to a feminist and decolonial political ecology (Escobar, 2007; Haraway, 2016; Tsing, 2015; Whyte, 2017) insofar as they cultivate a *glocal* perspective (Eckholm & Friedman, 1985; Friedman, 2000; Sahlins, 1993) and centre multilayered, intersubjective poetics of dwelling and emotionality in their treatment of socio-environmental issues (Haraway, 2016; Ingold, 2000; Norgaard, 2011; Orange, 2017). This is ultimately done in the pursuit of "sustainable society-building" (Japanese Commission for UNESCO, 2022; Yakushima Board of Education, 2021).

Said exploration was tangibly accomplished through analysing the qualitative content of a "boundary object" (Star & Griesemer, 1989) created through participatory artistic methods by Yakushima High School students. This boundary object expressed students' conceptions of the glocal socio-ecological qualities of the island on which they reside, which were characterised by the four themes of *Nature as Lowest Common Denominator*; *Water as Connector*; *The Preeminence of Trash & Waste*; and *Facing Reality, Responsibility, and Hope*. Examining the meaning and symbolism of this boundary object from the perspectives of students who participated in the art-making, as well as from the perspectives of students who did not, elucidated the dialogic power of boundary objects and participatory artistic methods toward sustainability-oriented place-based pedagogies such as that of Yakushima's ESD, which echoes the assertions of existing literature on the topic (Härkönen & Stöckell, 2019; Johansson & Isgren, 2017; Jokela, 2019; Mjaaland, 2009; Raatikainen et al, 2020; Thomsen, 2015; Zurba & Berkes, 2014). This research thus contributes to the field of sustainability studies—including human ecology—by demonstrating synergy between the situated narrative– and subaltern perspectives–oriented foci of feminist and decolonial scholarship in praxis. These approaches were successfully utilised toward an inspection of glocality and sustainability issues with youth in order to both deepen their senses of place

and to catalyse further conversation on those issues. Further, the resultant boundary object as a tangible manifestation of students' place-based sustainability perspectives led to even further opportunities for dialogue and reflection beyond this research, including a request by the local Board of Education to present the piece at a nationwide UNESCO environmental education summit, as well as requests by local elementary schools to use the piece in workshops on environmentalism with their students. This blurring of boundaries between academic research and collaborative praxis is demonstrative of the principle of dynamic reciprocity proposed by reflexive feminist methodologies (Gupta & Kelly, 2014). In this particular case, it also actively advocates for the centering of *students'* needs and voices (contra those of the state or other institutions) in the creation and refining of their own glocal place-based sustainability education (contra that of hegemonic "modernity"), thus acting as a dual embodiment of the subaltern-affirming border-thinking that decoloniality champions in its movement toward a liberating reconstruction of environmental ethics and political ecology (Escobar, 2007).

Through this research, it became clear that schools on Yakushima are clearly primed through the opportunities presented to them via ESD to deepen local students' knowledges of and emotionalities toward Yakushima's sustainability issues on a glocal scale. This research concludes that by more decisively adopting a kaleidoscopic, poetic, and narrative approach that include artistic methods, the ESD curriculum of Yakushima might just be that much more conducive to the "sustainable society-building" goals that it has set for itself. In the words of one participant: "We need to learn the good and bad about Yakushima. Then we need to learn the good and bad about the world. Then we need to use this information in ways that inspire and cultivate hope. That's where it all begins."

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Appendix

Stage One: Brainstorming

Artistic abstraction exercise prompts:

- What comes to heart and mind when you think of "nature"
- How you feel when you look out across a natural vista
- How you feel when you step into your favorite natural spot
- Feelings that you or the Earth might have toward environmental degradation
- Yakushima's connections to the wider world

Topics to cover:

- "Glocal" etymology
- Instances of glocality
    - In general
    - Specific to Yakushima
    - In an environmental and sustainability context
- Student's impressions of (reactions to) these instances
- How to express these phenomena artistically

Stage Three Interview Guide

Core questions for all participants while viewing the boundary object:

- Could you please explain for me the concept of *glocality?*
    - How does this relate to environmental and sustainability issues?
- Please give me your explanation of this art piece's meanings and symbolisms.
    - How do you feel when you consider these topics?
- Do you feel there are other facets of glocality or sustainability *not* expressed in this art piece?
- What kind of concluding thoughts on socio-ecological glocality does viewing and reflecting on this art piece elicit in you?
- What are your reflections on your participation in this research project as a whole?

Consent Form: Front

環境教育研究説明書

屋久島グローカル[1]アートプロジェクト

屋久島町教育委員会・アンドリュー　ゾル

鹿児島県立屋久島高等学校

　勢いよく進んでいる地球温暖化の社会経済的な原因を議論し、まだ政治化されていないところで闘う必要があります。そういう状況では、「教育」は大変意味のあるものです。特に、子ども達の教育での可能性は大きいです。持続可能な世界観、知識を全世界で認めて大事にするために、人間と大自然の相互依存を優先的に扱う環境教育が重要です。日本では、ESD（Education for Sustainable Development、いわゆる持続可能な開発のための教育）が文部科学省（MEXT）の教育振興基本計画にあります。しかし、この全国ESD課程の詳細は一律ではなく、それぞれの市役所か町役場の教育委員会、各学校、各先生によって色々異なります。こういう全国的な状態の中で、屋久島でもESDが行われています。

　屋久島特有のフィールドだからこそ、素晴らしいESDシステムが築けると思います。屋久島の教育に携わる方々（屋久島町教育委員会、各学校の職員、コンサルタント、研究者、在校生など）によって、常にESDを改善され、進められています。そして、私はスウェーデンのルンド大学大学院人文地理研究科人間生態学修士論文を提出する予定です。私が格別に興味深く思うところは、ESDの課程的な詳細よりも、屋久島在校生に、どれだけ深くそのESDを受け入れられているかです。今回、屋久島高校で行う研究は、環境心理学と対話型美術を基にしており、在校生の視点と認識に焦点を合わせて、どういう風に、どれぐらいグローカルな環境境遇意識が育まれているか、という調査をしております。その認識を表現するミクストメディア[2] 美術工芸品を作りながら、対話で現れてくるテーマや話し合いの内容なども、最終的に出来上がる作品も、ともにこの研究の対象になっております。

1　「グローカル」は、「グローバル」（世界的）と「ローカル」（地元の）をかけ合わせた造語で、世界規模に展開・通用する考えで、地域の文化や慣習に向き合い、社会のニーズに合った貢献をすることを指す言葉であります。

出典：「グローカルとは・意味」IDEAS FOR GOOD ウエブマガジンによる用語集. 2021年10月4日閲覧. https://ideasforgood.jp/glossary/glocal/

2　現代美術において、性質、種類の異なる複数の素材を組み合わせて作品をつくる技法

出典：「『ミクスト・メディア』の詳細情報」徳島県立近代美術館による美術用語 詳細情報.2021年10月4日閲覧. https://art.bunmori.tokushima.jp/srch/srch_art_detail.php?pno=3&no=140

Consent Form: Back

環境教育研究同意書

私は、屋久島グローカルアートプロジェクト環境教育研究について、
下記のとおり同意します。

記

1）個人情報：
被験者について、基本的な情報（名前、学年、学科、性別、お住まいなど）を生データとして収集されます。しかし、文面では個人情報は守られます。個人名が出されることはありません。

2）研究期間
研究期間が約２ヶ月となります（１２月終了）。

3）参加料
研究する為、料金など請求されません。
作品制作の道具などは全て研究者が用意します。

以上

令和３年　　月　　日

生徒氏名＿＿＿＿＿＿＿＿＿＿＿＿

ふりがな＿＿＿＿＿＿＿＿＿＿＿＿

保護者氏名＿＿＿＿＿＿＿＿＿＿＿＿（印）

ふりがな＿＿＿＿＿＿＿＿＿＿＿＿

屋久島グローカルアートプロジェクト

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