In and Out of Doors

A study in ecological design pedagogy

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Introduction

Any time I am asked to think of “a time when I remember being in nature” I am brought to Beaver Flats, a spot in Alberta’s Kananaskis country. It is a swampland ravine nestled between two mountain peaks called Old Buck and Bald Eagle; a flood plain populated with beaver dams, roaming deer and tall prairie grasses that gently roll and ripple like waves on the ocean. It resides at the foot of the children’s camp where I spent my summers. It is where my parents met and got married, where my elder siblings grew up and where my grandmother worked for more than twenty years. It is a place close to my heart.

This was a place for powerful spiritual moments during my formative years. It is impossible to deny the deeply powerful and magical energy of this setting. I count myself lucky to have been given such powerful experiences with nature. Not everyone has had the same opportunity and privilege. This is part of the impetus of this research and for this thesis, to bring this experience to others. I want to offer other designers some of what I see in the natural world, with all its powerful and enigmatic energy and to explore the implications that these types of experiences might have on a student’s design practice. Seeking inspiration for a framework for accessing these experiences, I came across Gnosis.

Gnosis

Gnosis learning offers space for insight into the self, insight into the spiritual and insights about the connections between the self and the natural world. It is a form of learning that integrates personal and philosophical insights, as I found as a child in the Beaver Flats. Gnosis learning "has to do with deep knowledge of animate forms, spiritual insight, wise judgments, and ethical action" (Davis et al, 2000: 15). Gnosis represents an alternative means of understanding knowledge creation and formation that is in contrast to the formalist, twentieth century skills-based educational models we teach today. In the book Engaging Minds: Cultures of Education and Practices of Teaching, Brent Davis and his colleagues describe Gnosis as a distinct type of knowledge which provides access to a truer "liberal arts education" (or literally arts that are freeing) (ibid: 17). It represents the balancing philosophy to skills-based education and provides a framework for seeing the world beyond a scientific worldview. In drawing attention to these ancient ways of learning, Davis and his colleagues validate a plurality of pedagogies which may lead to a plurality of futures in education. This means seeing many ways forward, not being relegated to continue to force new ideas into twentieth century models of design education. The world is fundamentally different than it was a century ago, yet many of the philosophies of the twentieth century remain dominant in teaching and learning. Having many ways forward frees educators from these restraints and makes room for other approaches to education.

I look back into the history of educational philosophy to underscore that the spiritual, the ethereal and the intuitive are valid ways of learning from the world. These ways of being and learning underpinned western civilization long before the advent of enlightenment thinking. The term Gnosis was first described in the "Corpus Hermeticum...a collection of Greek texts from the second and third centuries A.D." (Rudolph 2001: 25). Gnosis is described and contextualized in these works as a means of learning and knowing the world which is inextricably linked with the spiritual, the self and is not taught by someone else (as in today's 'teacher-student' model) (ibid). This is rooted in ancient Greek understandings which required a balance between both the acquisition of skills-based knowledge and a philosophical and spiritual

understanding of the world. Gnosis learning provides “a means into important ethical, psychological, social, civic, and cultural insights of a society” (Davis et al, 2000: 15).

In this thesis I explore ways of connecting and being through Gnosis, in support of the search for more ethical, ecological and sustainable ways to work and to design. I believe that Gnosis learning leads to wise judgment. Making space for students to explore and develop this type of ethic is becoming a greater imperative as modern societies continue damaging ecosystems and harvesting resources at unsustainable levels. The survival of many species within life systems is dependent on fundamental shifts in the way we know the world. I envision ideal twenty-first century education as a balance between skills-based learning and learning which engages deep insights into the self. It is an education which explores our connecting with the world and what this understanding of connection may offer as a means of addressing some of the great challenges of this century.

My exploration of Gnosis in the context of a research project with undergraduate industrial design students lead to the development of a learning model based on Capra’s diagrams of nested systems and Carl Jung’s Four Functions (Capra 1996 & Jung 2014). This learning model is rooted in a series of designed objects and assets which encourage students to get outside and explore design through their connection with the natural world. This is done to get students more deeply considering how design, and ultimately the designs they themselves will put into the world, are going to impact the planet. It asks them how exercising their physical capacities as designers makes them understand themselves, their decisions and the way they see themselves in the world. Together, these ideas become an important task given the current climate emergency we are facing.

Context

We are in an advanced state of ecological crisis. The world is losing the vast and complex biodiversity it needs in order to sustain life. Human-influenced biodiversity loss is putting the world in grave ecological danger. According to Flannery, "[I]t's clear from major extinction events in the fossil record that if Earth's energy budget and ecosystem resilience fall below certain thresholds, a fully functioning Earth system cannot be maintained" (Flannery 2011:43). This is a direct call to action, that we must do something about our collapsing ecosystems and biodiversity if we wish to sustain human life in future generations.

We are losing species of animals and plants at unprecedented levels, rivalled only by the extinction event that killed the dinosaurs some 65 million years ago. Through habitat destruction alone, human activity is poised to eliminate at least forty percent of animal species within the next few decades (Pimm & Raven, 2000). In a larger context, these massive species die-offs mean the end of a system of complex biodiverse interactions causing ripple effects through generations of populations.

To some, these interactions may seem simple. Less density of grass due to hotter climates means fewer hares which means fewer wolves can survive. However, these 'trophic cascading effects' have compounding and increasingly complex interactions when other localized species are considered (Bruno. 2008). Fewer surviving wolves means a spike in woodland deer populations causing more grass die-off due to larger populations eating the now limited supply. These crests and troughs of waves of animal species lead to eventual species collapse from overpopulation. These then further impact plant and animal reproduction causing massive swings in population from overgrowth to collapse. A diagram of these types of relationships is found below (Fig 1). This diagram illustrates that a balance in wolf and deer populations leaves trees and grasses healthy. Culling wolves has unexpected negative impacts on trees and grasses.

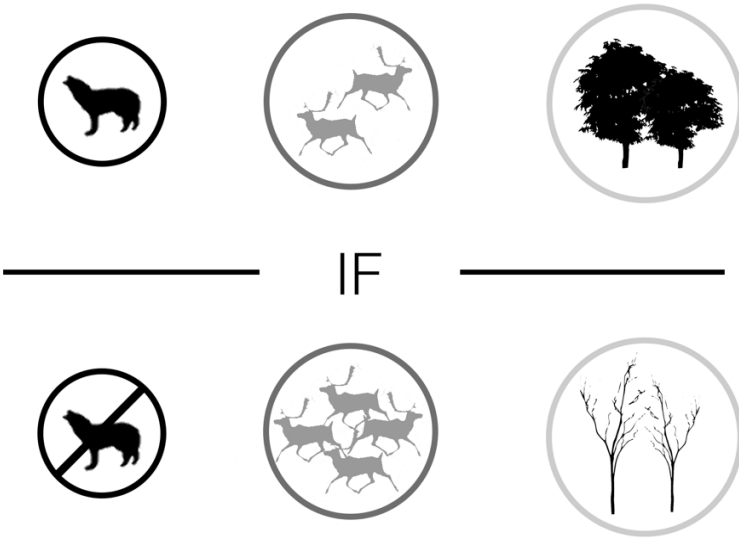

Figure 1. Trophic cascade infographic

These systems have deep interconnections and our actions have direct and calculable impacts upon them (Valiente-Banuet, A. et al. 2015). Our relation to these impacts, our role in ecosystems, is an important task for us to engage with if we want to continue as a species.

Many of the major driving factors of biodiversity loss exist within and are propagated by the messy systems of global politics and massive manufacturing systems. Damage is systematically wrought on the environment in the name of progress and capital. This thesis is addressed to design educators who endeavour to lead a generation of students toward a more holistic and relational view of how these systems connect to wider ecosystems. Together, these relational educators and students will be able to shift away from the destructive worldview of modernity and into a more nature-focused and relational era of design.

Many believe that this should be an era that puts the environment and all of her species' interests to top of mind. Fletcher et al. question "design's alignment with Modernity, progress and capitalism" [and contend] that "there is an alternate alliance for design: a partnership with nature" (2019). The question then circles around to the ways we can teach this.

Research Question

My vision for an ideal model of design education is one that cares for all beings on this planet. This is a model which promotes relationality, understanding of complex systems and which reorients sustainability away from an 'add on' in design education. It is one which sees sustainable design practices as the central focus of all design work (Dewberry, 2011). In this thesis, I examine making space for developing Gnosis learning through the lens of the question,

"How can pedagogical prompts remind design students of their connection with nature?"

A more robust connection with nature offers access to a worldview which values and works in support of the deep interrelations we have with the natural world. This model provides an opportunity for exploration of Gnosis learning, which offers students the space and time to consider their own ethical understanding of the world and their work within it. Should students be given opportunity to deeply consider how they relate to the world around them, their understandings of the conditions in which they live and work must change. This may open them to a worldview and a practice which actively supports biodiversity and earth systems in all of their decisions. Wise judgment means, in this case, being able to adjust design processes and products to meet the ethical and spiritual requirements of a design brief, not only the technical and financial. To access this deep learning, unlearning and relearning, design students must be given space, time and resources to help transition from the worldview of modernity and into a more ecologically minded one.

Design for Biodiversity

The research and findings that provide the backbone for this paper were conducted primarily within Emily Carr University's DESIS lab (DESIS, 2016). The Lab, which is located within Emily Carr, is collaborative and student focused, underpinned by a research philosophy of social innovation and sustainability. It is a part of the larger Design for Social Innovation and Sustainability network worldwide (DESIS Network, 2016).

Social innovation is described by the DESIS Network President Ezio Manzini as “new ideas that simultaneously meet social needs and create new social relationships or collaborations” (Manzini, 2015). In a more recent article, Manzini has stated outright the need to “focus on the theme of social innovation for the environment” (Manzini, 2019). This is a design philosophy which is, first and foremost, about social relationships and the environment.

This was the perfect laboratory in which to study design education and the environment. My research was conducted in partnership with the Design for Biodiversity Research Project parts one and two which was led by Louise St. Pierre (St. Pierre, Camozzi & Simon, “Design for Biodiversity Progress Report #1”, 2019). The lead teaching faculty on these projects were Zach Camozzi and Charlotte Falk and they were aided by Marine Biologist Amanda Weltman from the Vancouver Aquarium. The project was funded by the Ian Gillespie Design Research Fund.

Both phases of the Design for Biodiversity research project had three defining features. First, they were focused on Industrial Design pedagogy. The research team was interested in how design education can make space for supporting students as they come to understand their connection with nature (DESIS, 2018). Second, the phases were focused on the connections between humans and more-than-human species. Phase one focused on rockfish as a central species; phase two focused on kelp and the many relationships kelp has within ecosystems (St. Pierre, Camozzi & Simon, 2019). The third feature was that they were in constant conversation between two pedagogical realms. While student understanding and outcome development was being examined, we as educators and researchers were engaging in reflection and process documentation. Educators were documenting the process outcomes and student engagement to determine the efficacy of the project. These reflections on the process and outcomes were then described in blog posts and added to research papers. This bilateral engagement encouraged multifaceted research outcomes which have been and continue to be disseminated on the Emily Carr University DESIS blog (DESIS, 2018).

Project Iteration 1

Reefs, Rituals, Rockfish – 2018

The greater research questions from this introductory phase are:

1. How might we design reefs and rituals for rockfish that increase habitat and bring local communities into a caring relationship with more-than-human life in local coastal regions?

2. What pedagogical experiences might engage students in appreciative relationship with more-than-humans?

3. How might we expand designers' abilities to conduct research with the natural world?"

This first iteration of research provides the contextual background for the key findings relevant to my research moving into 2019. I draw attention to this phase not to place priority, but to provide the background of the project that I was more involved in later.

In this first project, the research team designed situations which ecouraged Industrial Design students to use their skills to support another person in developing a sense of empathy for a more-than-human species (St. Pierre, Camozzi & Dixon, 2018). In doing so, students first needed to feel that same empathy. The research team created course content which required students to design a modular habitat object that could be first used by people and then one day become part of a habitat for a rockfish. In drawing together the understanding that a human habitat is not removed from a rockfish habitat, this understanding of connection with another species was explored through the student's design work. The students explored how an object would need to be created in order to meet the needs of many 'users', both human and more-than-human (St. Pierre, Camozzi, & Simon, "Design for Biodiversity Progress Report #1", 2019).

During the creation of this object or system, students were given a series of 'interruption' tasks designed to upset a more familiar design

and creation cycle, then work to come back to nature on a regular basis. This was to become part of a regular ritual explored by students, something they would come back to throughout their design process (St. Pierre, Camozzi, & Simon, “Design for Biodiversity Progress Report #1”, 2019). The research team asked students to work to regularly reconnect with the being for which they were designing. Students were asked to ‘body-storm’ concepts in situ, with some students going so far as to swim in Porteau Cove. They were given paper rockfish as totems to help remember the species they were designing for and were tasked with practicing ‘thinking out loud’ on location. Each of these activities worked to “reground” the students during a project whose momentum may not have allowed them to get outside and remember their target species. (DESIS, 2018).

A major insight came during the creation of these objects, that some students instead developed objects to be used solely by more-than-human species. In reviewing their reflective documents, the process of designing for more than humans “put us designers in the mindset as caregivers/protectors/nurturers moving forward in the project” (St. Pierre, Camozzi, & Dixon, 2018). To see oneself as a carer or nurturer of a more-than-human species sits in staunch opposition to the hierarchical nature of empiricist ideals of the twentieth century.

A Prompt

Interview a more-than-human being.

What have you always wanted to ask a 300-year-old tree? What can a squirrel tell you about their day?

Work together to find a language you can both understand.

Embrace the unknown.

Project Iteration 2 – Design for Biodiversity - 2019

Moving into iteration two of this research, we recognized that when engaging in more-than-human centered research, it becomes important to select which species a group focuses on. The shift away from rockfish and onto kelp provided easier access to considerations of larger ecosystems. It also offered accessibility to more intricate but easily identified relationships like that shared between kelp, sea urchins and otters.

Students were tasked during this iteration with creating a series of artifacts or 'citizen engagement tools' to support another person in connecting with the intertidal areas around Vancouver (St. Pierre, Camozzi & Simon, 2019 Design for Biodiversity Report #2). This was shift away from a defined object, like a modular habitat and onto a tool which puts a user into action. The primary focus of facilitating a user acting within nature also provided a more authentic space for students to explore ritual. This was a major improvement from phase one.

From my own observations on the first iteration and from that of the research team, a handful of key ideas and outcomes became drivers for my thesis. The first, that developing a deep and connected practice takes time. With a great deal of learning to do in a five-week design cycle, in a two-semester year, in a four-year degree, it feels like there is very little time to do a great deal of "unlearning as well." As Barrett says, "Threshold concepts ... require examining deeply, and often unconsciously, engrained assumptions and beliefs" (Barrett et. al. 2017). This is a task not done quickly or lightly and requires the space and time to make this way of working integral to a design practice.

Second, is that the activities undertaken cannot be singular and cannot be seen in isolation. These activities need to be situated at regular interval within a design cycle. It is from this repeated practice of going into nature that a truer understanding of it develops. This, like all other aspects of learning, requires time, but also requires space (as above).

To put this into context, in order to repeat something, we must remember. We must remember what we did, how we did it and (often subconsciously) how doing so made us feel. To remember, we must recon-

textualize prior stimuli and understandings. This is a way to overcome repressed memory in order to understand our use of prior knowledge. The regular "coming back to" allows multiple iterations of recontextualizing and encourages a deeper understanding of the place and its meaning. This process of repeat, remember, recontextualize has been theorized to exist as a core function of the human psyche (Scarfone. 2011).

As part of the Design for Biodiversity project we explored ways of bringing students in and out of doors, or 'thresholding' them (Barrett et. al. 2017) toward a worldview that sees nature as not *apart-from*, but *apart-of* us as designers. In "thresholding", we attempted to "take students into a space of liminality and, if successfully grasped, (to begin to) prompt ... ontological change" (Barret et. al. 2017) to whatever degree we could. In this context, ontology and ontological change are shifts in ways of being. They are incremental and fundamental shifts in behavior and ways of acting within the world. These shifts are very important if we are to take action against human influenced climate change.

On Making Space

In parallel to this research project, I also engaged in a series of activities to support my personal investigation into Gnosis learning. Being in the liminal space of both teacher and student provided for ample research and reflection. The body of this Gnosis-focused research began during the summer of 2019 while attending Float School (Langlois & Schmidt, 2019).

Float School brought graduate students interested in teaching to a series of informal learning spaces to have discussions about what teaching and learning can mean. We investigated how and when to mobilize nature (fig. 2), non-institutional learning spaces like the Vancouver Aquarium (fig. 3) and physical activity (fig. 4) in an art and design context. This was when I realized the importance of making space. We were given the time to walk, to sit, to listen, to think. We were challenged to imagine what this might look like in our own teaching contexts. In doing so, I saw the impact of participating in intellectual activity outside of the confines of the institution and what a fresh perspective it could offer.

Figure 2 - Ben and Romane hugging trees

Figure 3 - A view from the roof of the Vancouver Aquarium

Figure 4 - Paddling and thinking

Ecological Intuition

In the summer of 2019, I carried out a series of interviews with two marine biologists. I asked them to talk about how they view and understand their field. These interviews were conducted on beaches. This was to encourage aspects of Gnosis learning when given the time and space to deeply consider complex interactions between humans and marine species. (see figure 4)

While I was interviewing these scientists, they told me that they agreed wholeheartedly with the scientific and enlightenment worldview. Given this, I was surprised that they were so attuned to the more subjective elements of understanding life under the seas. They seemed to have an intuitive way of seeing where and how many organisms would live below the water. This was a substantial finding for me. However, the scientists lacked the vocabulary to describe their connection to nature in a subjective sense.

Figure 5 - Scientists in their natural habitat

I noticed in our conversations that they seemed uncomfortable describing their connection to nature in emotional or spiritual terms. They seemed to want to direct conversation back onto facts and figures. The modernist and empiricist worldview won out over an explanation that this intuition is guided more by a deep and intimate knowledge of animate forms (Gnosis).

Through the above research moments, I engaged in my own Gnosis learning. A period of incubation proved valuable as both a learning and teaching tool. I made conscious effort to take time out to engage in the prompts I was developing and to regularly engage with nature. I took care to both give attention to a task and to consciously remember why the work is important. This is something often deprioritized in a design context. Making room for this type of reflection, for validating the importance of meaning making, remains a driving force behind the design of the prompts that I developed.

As discussed above, “remembering” is an important component of my work. From the beginning, I was hesitant to use some of the terminology explored in the Design for Biodiversity project like “nature focused ‘interruption’ or ‘disruption’ activities”. ‘To interrupt or disturb’ alienates the activities and their outcomes from the design process as a whole.

Nature, and activities in nature, must be seen as integral in order to maintain their relevancy to a designer. I have offered instead terminology like 'remind, remember, ritualistic and situating' to describe these activities. These terms feel far more integral to the work of developing the "relational practices" described by Dewberry, Barrett, Fletcher and others.

Prototype Prompts – Playing Cards

The first prototype that I generated in an attempt to provide educators with a tool to support Gnosis learning outdoors was a deck of playing cards. The cards each contain a prompt ranging from simple breathing exercises designed to be completed on your own, up to multi-person teamwork activities. These cards are designed with three key features in mind: portability, multiplicity of options and speed of implementation. I chose the form of a deck of cards as they are small, light, sturdy and somewhat weather resistant. They are something that can be slipped into a pocket or bag and carried out into the woods or into the school yard.

Figure 6 - Prototype Cards

Their portability also offers access to educators who feel that they do not have enough time to implement a substantial pedagogical tool within their courses. The prompts afford a short engagement whenever the educator has a few spare minutes.

A deck of cards is also a more inexpensive format to produce which increases their accessibility to educators. Providing accessibility of these prompts to a wide range of educators and contexts was what seeded the production of prototype three of these prompts, which are developed to be accessible online and produced in a classroom context. These prompts are made available through the Emily Carr University DESIS Website and discussed below.

These cards were trialed at Barnet Marine Park during a prototype meeting between Josh Singler, Louise St. Pierre and myself. The cards acted as inspiration and permission to play. They also offered a springboard for conversation about the types of activities that work toward, or against, what I came to define as Gnosis learning. These early conversations provided inspiration for the logistical, pedagogical and philosophical considerations that informed my prompt building. They were also a great way to spend a day in nature with colleagues.

Figure 7 - Walking, talking and making

Pedagogical Prompts for Connecting with Nature

Figure 8 - Prompt Cover

Using nature as a teaching and learning space seems obvious to me, but, as I am reminded often, is not obvious to all. I have encountered many young people in my short teaching career who do not see nature the way I do. This often means that they lack the tools, processes or attitudes to bring their designerly ways of knowing into the world of nature. This is best exemplified by an anonymous student's reflection at the end of the research project: "Andy's research (prompts)... let me stop and really listen and observe nature without looking for anything in particular. I also felt quite situated whenever I began to draw my senses. This is a practice I've done before but never within the context of the ocean." They went on to reflect that "I've had a very limited relationship (with more-than-human life in my local coastal region) in the past, only experiencing coastal life at my cabin or on vacation." Clearly this student had ample opportunity to connect with nature in their life, but they needed to be given tools and an orientation that would allow them a healthy engagement with the natural world.

This calls back to Barrett's "thresholding" (Barrett et. al. 2017). Educators need to offer students just enough to direct their attention into a Gnosis-oriented learning space, to shift the focus of the tools they rely

on in the design studio towards engaging with the natural world. How the students end up utilizing these tools, the outcomes they produce, the considerations of place and ethic that are had cannot be controlled. The educator is responsible for offering glimpses and models into these ways of knowing and providing the space for students to bring themselves across the threshold and into this deeper learning.

Here lies the opportunity to combine the skills of a designer and educator to develop pedagogical activities which encourage students to go out and into nature. It offers the chance to prompt an engagement with Gnosis learning so that students may begin to threshold toward ontological change.

To remember, as a shifting of attention

This ontological change need not be ground-breaking and earth shattering. Instead, it may be as simple as "a shift of attention maybe just 20° away from what we have been taught to seek, to bring attention to the living earth; to forests, ravens and ground squirrels" (St. Pierre, 2019). This shift of attention is one which brings into closer proximity and wider view the fullness of our connections with the more-than-human world (Plumwood, 2009). This provides for an increased capacity to remember how our actions connect us with place and with nature. In doing so, we become acutely aware of our positionality within systems. We begin to see ourselves as a part-of, not apart-from.

Arne Næss describes what it would look like if we could achieve this, to bring this awareness, as ecological literacy (Næss, 1995). That we see parts and wholes of ourselves in the natural system. This will require relational and aware practices that work to benefit both humans and more-than-humans in all decisions. This then calls for the need for Gnosis understandings of the world. It requires the building and development of a connected ethic rooted in rationalizations of place. It offers opportunities for contemplation of self in the spiritual, the ethical and more-than-human world. As Næss describes, the 'ecological self' requires a significant shift in focus away from the paradigm prompted by the enlightenment thinkers who objectively viewed and categorized the world as apart from themselves. Something to be studied. This starts, in

Næss's understandings, through identification and intense empathy. Næss tells of a story in which a flea is killed in a bath of acid as the result of landing in the wrong place at the wrong time. In watching the flea spasm as it dies, he says "what I felt was a painful sense of compassion and empathy. But the empathy was not basic, rather it was a process of identification: that "I saw myself in the flea"" (Næss, 1995). Through this story, Næss describes a version of understanding his "ecological self" as being a part of the larger system. That he could be as much that flea as it could be him. Should we have access to this type of understanding of the world, to see ourselves in the systems and beings around us and to empathize with them in our own way would drastically change our understanding of self. It would be very different for each person, as our ability to identify with different aspects of our relationships with the earth and her beings would mean something different to us all. It would remain, however, an important task, to be able to identify with them in our own ways.

It is easy to forget about the natural world when a designer's vision tunnels upon a completed project or prototype. It is easy to forget that their connection with it will be fundamentally changed every time we design and produce something (Escobar, 2018). It is here that the momentum of design projects can sweep designers away from relational practices, and into the modernist preoccupations with performance, schedules, profits and grand narratives (L. St Pierre, personal communication, February 2020). The prompt activities, this practice of mindfulness, are choreographed and scheduled to balance that driving energy and momentum and bring the project back towards a more relational practice in tune with earth systems.

A Prompt

Take ten full, deep, measured breaths.

In through your nose and out through your mouth.

Count to four on the in breath and four on the out breath.

Enjoy the fresh air.

Underlying Theory for Prompts

A key theory underlying the way the prompts were built comes from Carl Jung's Four Functions (Jung, 2018 [1925]). These four functions of knowing or understanding the world are "Thinking, Feeling, Sensing and Intuiting" and they relate to perception and interpretation of reality and our response to it. One of the more interesting key features of this understanding of my own self in this research was the diametric opposition that this theory sets up between thinking and feeling. Design school, or perhaps my limited engagement with it, involved a lot of thinking, which sits opposed to my time in theatre school, which involved a lot of feeling. I feel a great sense of loss when I see students so desperate to meet course outcomes and project deadlines that they forget about how the work makes them feel.

This ability to articulate how one feels, what feelings they can describe when designing, was one I hoped to work with students to understand. This works back to the rebalancing of skills-based and Gnosis knowledges, asking the students to not only make, but understand what that means, what that does to them, how it makes them feel. It also asks them about how exercising their physical capacities as designers makes them understand themselves, their decisions and the way they see themselves in the world. This manifested during the research project in the development of the questionnaires. The first question was "How do you feel when out in nature?". This questionnaire was delivered after a short introduction to the project with little explanation. When a student asked "what do you mean 'how do I feel'?", my response was simply "Describe in whatever way makes sense to you." This was a sort of pre-assessment, to see both how and what students would say when asked about their feelings. Many students responded with descriptive words like "happy, relaxed, disconnected (from the hustle and bustle) etc". I found this interesting. Perhaps short questions prompt short answers.

Prompts for robust engagement

Through the development of the prompts, I wanted to model what are more robust means of engagement than students may have used before when out in nature. Often student respondents could identify nature as being a place for vacation but struggled to articulate it as a place of work or design investigation. Students discussed nature in terms of what it did for them, but no students discussed what they were doing for nature. In providing language and tools in these prompts I also hoped students may begin to develop a broader vocabulary, rooted in sensing the world (re: Jungian Functions). This means demonstrating not what a place looks like, but what it feels like, what it sounds like, how it makes a student feel. If students can develop both a verbal and embodied vocabulary to describe the world in these more complex terms, they may be able to better understand how they relate to it and the important part it plays in their lives.

Every activity begins with the same 5-minute breathing exercise. These centering exercises are designed to bring an awareness to the immediate moment. They draw attention into the now. As will be elaborated on later, these prompts are designed to use memory to link prior experience to root the current engagement. This helps to both physically and mentally "bridge" the activity with memory. This is a trick I learned as an actor memorizing lines. To commit concepts and experiences to memory, one can assign an action to a phrase or line. This produces a much higher likelihood of staying with the learner. Building a repository of these nature centered memories offer students a chance to answer the question "How do you feel when out in nature?" more accurately and honestly.

I wanted to help them with this vocabulary building in the 'task and reflection' portions of their prompts. For example, the prompts like "Beach Activity Two" asked participants to take ten full deep breaths in ten locations around the beach. This mindful exercise was intended to give the students permission to simply focus their breath. As in many of the prompts, the reflection portion was built in a nested approach with questions moving from internal to external in their assessment and impact.

The question for educators becomes how to assess if students are be- ginning to access the shift of attention, or gnosis learning. Some indicators that this may be happening are that students begin to identify and draw attention upon new understandings of their connection with nature. This was evidenced in their reflection documents from the class and their exit questionnaires.

Nesting and Cascading

The concepts of Cascading and Nesting have provided a framework for understanding engagement with pedagogy in this research. These terms are inspired by Fritjof Capra who works to shift the dialogue around natural systems away from isolating scientific understandings and into a taxonomy which represents the interconnectivity of nature (Capra, 1996). Cascading implies a series of compounding effects which, when triggered, provide a tumbling down of interrelated steps and learning. Nesting implies that a project or course outcome is rooted in a series of concentric rings of engagements. Each of these rings requires the other to function. They represent a taxonomic shift away from formalist, linear educational jargon which tends to imply that "if you teach this, students will learn this, and will do this". Instead, nesting allows for an understanding which can shift between rings, can reside within larger and smaller clouds of information. To imagine learning as the regular wayfinding, through rooting in the present while calling upon the past, provides the flexibility of understanding that is so integral to design.

Enlightenment thinking was led under the auspice of "reason". It was a retort to the fundamentalist religious principles of the middle ages. It was a contortion of the logic-driven epistemologies of the Greeks and Romans but differed in its application. Enlightenment-based rationalism required not only indefensible logic, but it also required the stringing of a series of linear arguments in order to prove a truth. This linearity, coupled with empiricist notions of "understanding the parts to understand the whole" have led to a very singular, insular understanding of the world. This makes understanding systems difficult. It makes flexible application of thought difficult.

Viewing learning and pedagogy as a series of nested systems, which have cascading effects as skills and attitudes are acquired, encourages educators to view projects and learning outcomes as connected and interrelated. They also help convey to the student the nature of nested relationships, both in content and in natural systems. To fragment or remove learning from nature severs that connection in the name of "timelines" or "content forward educational policy". A way to remedy this is through nesting a student's learning.

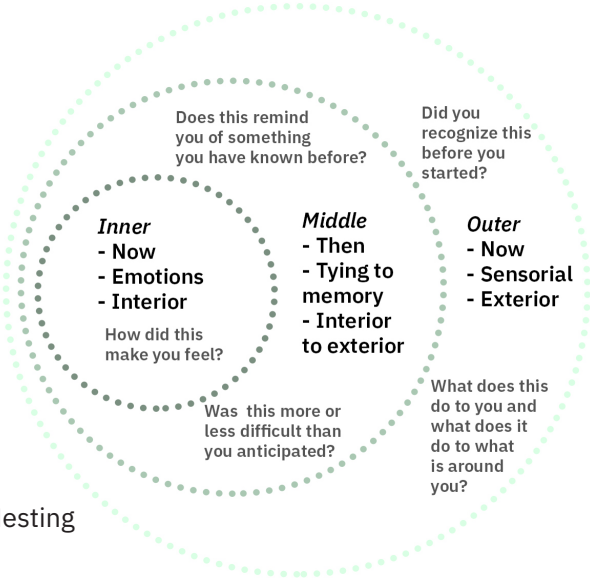

Figure 9 - Nesting

This cascade was designed to support the bridging from concept to previous understandings and then to commitment to memory. A diagram is provided for clarity. I am titling the defining features "rings" and then indicating some of the types of language used within each ring. In the case of "Beach Prompt Two", the prompt asked first "How did the smells, of algae or salt or sand, affect you?" (now, visceral or sensorial, deepest ring). It then asked, "Do they (the smells) remind you of anything you've smelled before?" (tapping into memory, moving outside of now, middle ring). Finally, "Did you experience something new about this place that you perhaps had not known or considered about this place before?" (tapping in to memory, moving outside of now, outermost ring). It is from the pairing of a short sensorial task and the cascading questions that I hoped to help students develop and cement a broader vocabulary in the way that they experienced the natural world.

On Silence

In seeing these prompts in action, I made a few key observations. The first, and most important, was the silence. On the two occasions I actually got to see these prompts being actively used by students, the first at the Vancouver Aquarium and the second at Barnet Marine Park, I was pleasantly surprised by how silent and still the students actually were. Seeing groups of students engaging both with the prompts and with nature in this way was heartening. These engagements were far from the hustle and bustle of racing through aquarium exhibits and the madness of testing of prototypes for the class that this research was associated with (INDD 200 at Emily Carr University). I saw what appeared to be a very focused and present group of young designers attempting to bring their minds closely onto the places they were in. I had hoped that practicing the mindfulness activity presented on the front of each page which asked the students to simply breathe for 5 minutes would achieve this.

I watched the students settle in, close their eyes, make still their bodies and breathe deeply. This struck me as a poetic ballet of activity which both the prompt's final and near to final iterations helped choreograph. From energetically testing prototypes on the beach, or playing with otters at the aquarium, the students transitioned to a focused and still silence which created a very serene energy in these natural spaces. Yoko Akama describes this frenetic energy favored by dominant design as "action mode" which sits in opposition to the "rather than a passive, receptive mode of reflection" accessed in the stillness mentioned above (Akama, 2012).

A Prompt

Face the water.

Attempt to make no noise at all.

What do you notice in this stillness?

Design: Production and Fidelity

Figure 10 - Prompt production one

A second major observation during this process was the students' obvious gratitude of and interest in the quality and fidelity of the prompts. The prompts were designed around three major components: the centering exercise, the sensorial activity and the reflection. The prompt books were designed to fit in a pocket with transport and ease of use in mind. They were made of a robust jacket material which had a flap for sealing the cover and helping to maintain the choreographed nature of the prompts. This required students to physically break into the prompts and refrain from reading ahead. This sequential approach helps students to shift attention to the more-than-humans around them. In supporting students through these three distinct phases, attention shifts within the space but remains rooted in place.

The fidelity of the prompts, the tactile nature of the paper, the size and form, all keep attention on the senses and give the mind room to wander. The prompts instruct students to take set periods of time to look, to smell, to breathe. This encouragement of taking time "to feel" offers

space for students to reflect on the implications of dedicating this energy towards the more-than-human world, and the impact that it might have on their process. The level of finish and fidelity also offers design students an engaging object with which to interact. This provides higher levels of engagement.

This engagement comes from a few places. The first, that designers tend to appreciate well designed objects. There is not likely a more appreciative audience for a highly designed object than a group of designers. It is here that I was tapping into a zeitgeist as a hook for engagement. However, the teacher in me also suspects that some of this appreciation and fascination comes from the marriage with an educational tool that is both very polished or considered and one that is designed to be wrecked, ruined, destroyed or maligned. This is not a convention often deployed in the development of classroom activities or assets. Low fidelity, quick to produce, non-precious, durable objects tend to populate the classroom instead. This is common for many reasons-- time, resources, repeatability, etc. It does, however, mean that when something that opposes these criteria is introduced, something that is refined, choreographed, bespoke, it creates a challenging and exciting aspect to the design classroom and process.

Figure 11 - Prompt production two

My personal reflections

I tested all of the prompts on my own before implementing them in the prompt books. The practice of a five-minute mindfulness exercise before each prompt has a noticeable impact on my understanding of time. As is the case in a busy modern life, attention is divided between now and then. Between deadlines looming, between what has happened before and what is before us now.

Another key finding from doing this work myself is how the change from micro to macro, from bark on trees to sand on beach, impacts understandings of relationships. I could not see that both trees and sand have tiny bugs and creatures on them unless I got very close, unless I touched the textures and moved the moss. To see how these two relate, that both micro-systems work similarly, brought me an understanding of the complex interrelationships that exist. It also affords investigations of what I might do not only for the big, the cute, the inviting species which I see regularly, but for the little, the unfamiliar, the less inviting ones as well.

In my personal practice, Gnosis learning has felt quite affronting. When I found myself engaging in activities which brought the world into a more gnosis oriented view, it felt at first counterproductive to my design work. It felt like pouring sand into the gears, grinding the process to a crawl. It took some time and reflection to realize that this is the point. Productivity has long been touted a virtue of the industrialized world. A business or object's merit can be tied up entirely in its efficiency and productivity. However, as we have seen evidenced in the destruction of the planet and her resources in the pursuit of speed, efficiency and production, we lose sight of meaning. It can be easy to excuse destructive decisions when their impact is far removed from our spheres of understanding. If I make a poor choice and the consequences are not felt near me in a tactile way, their weight feels easy to ignore.

When I am working with wood products and must regularly confront the spaces in which my production is damaging the local habitat, the material becomes precious, the action becomes deliberate, the process becomes sacred. It also requires more regular reflection on the impor-

tance of my work. Do we need another run of chairs at the cost of a local ecosystem? Do I need to design a new door to protect my house at the cost of the homes of countless other species? Gnosis thinking gives me pause to consider the weight of my decision. It takes the accounting of risk and benefit off the page, out of the land of abstract numbers and into the world where these decisions have great impact.

Student Reflections

The last activity in these prompts was to offer gratitude by thanking the place that hosted the learners for the day. This is a concerted and active effort to acknowledge and appreciate the species around them. The act of gratitude provides us a chance to reflect on the nature of sharing with the more-than-human world. We share gifts with other humans, but rarely do we share gifts with the more-than-humans. This is unfair for a species who takes so much and returns relatively little. To encourage students to consider that they owe something to the land and the more-than-humans on it offers a window into a more bio-inclusive understanding of the world and works to undo the artificial "man-above-all" hierarchy we have created for ourselves.

This project points to some exciting outcomes as evidenced in the exit questionnaires. Not only is the sheer word volume much higher, in many

cases four to five-fold, but the complexity and nuance is increased too. One such example is from a student who, in response to the question "How do you feel when out in nature?" said first "Relaxed. It is quieter away from the noise and distractions of city life." When asked the same question after the research, this student responded by saying "the more time you spend in nature the more you build a connection with it. I think that getting people to interact with nature, through varying senses is very important, not only seeing but touching, smelling, hearing because it takes (nature) outside of just being a spectacle." This was an important point for me. This response demonstrates a much more complex and nuanced understanding of connection with nature. It is rewarding to see a student placing themselves within nature and reflecting on engaging all of their senses. That nature is seen many times as something purely marvelous or spectacular is both heartening and unnerving. While

it is positive to know that it's awesome power and immense beauty are noticed by others, it is also worrying that it becomes easy to misunderstand our relationship with it. As much as it can be beautiful and awe-inspiring, we must remember we are as much a part of that beauty as it is of us. To make it a spectacle makes it an easy target for instrumentalization, profit and abuse.

Making Accessible Prompts

This research trajectory has concluded on the development of accessible prompts for educators which can be digitally distributed and assembled in many classroom contexts. These prompts will exist in a repository of a number of activities I am compiling which can be activated by post-secondary educators. These prompts remain in development and implementation but are defined as a series of digital, downloadable and customizable documents. These documents can be printed and assembled by educators and can then be brought into the classroom or out into the field.

These documents are lower fidelity and require less time to produce, but access much of the same content and nested reflection of the higher fidelity prompts explored earlier.

Accompanying these prompts and their relevant descriptions will be a

continuum upon which each item will be identified. With the continuum running left to right, the left will indicate activities which are designed to be used in the classroom or near the classroom, with prompts or activities on the right being designed for use in the field or the wilderness. Educators will be given the opportunity to select prompts from anywhere on the continuum so that they may best utilize the assets within their classrooms.

Beach Prompt 1

LOCATION

NAME | **11/22**

Figure 12 - Prompt form prototype

A Prompt

Say thank you to the more-than-humans who are hosting you as you live and work today.

Think about a small token or gift you can produce with what is lying about around you.

Say thank you and deliver your gift. *Mean it.*

Conclusion

Nature is something to be valued, protected and something with which to develop a realistic relationship. We should understand its parts, in order to understand its whole. We need to understand the relationships nature carries with all of its constituents, human and more-than-human alike. In order to do so, we need to experience it in many ways, not just on vacation or in leisure, but also in active, mindful and focused ways too. Designers need to be given the tools and the permission to play and to engage respectfully with the natural world in order to really understand it.

Gnosis provides opportunities for design students to slow down, to experience the world around them and to take the time they need to deeply contemplate how they relate to their surroundings. Gnosis is a contemplative state, it is about learning through feeling. This understanding of education and the worldview it provides access to opposes many mainstream educational practices. Accessing the relational and spiritual is not done quickly or lightly. It takes time and is a learned skill. The world of design education very much privileges the pace and momentum of 'action mode' design (Akama, 2012). However, should educators be able to incorporate some of the Gnosis pedagogy offered in this thesis, they provide young designers an alternative to the quantitative, 'objective' ways of knowing the world that have often been deeply ingrained from a legacy of twentieth-century education. In these alternative ways of being and knowing, we best set up students to begin to tackle the complex challenges ahead of them.

Being given permission and time to experience the world in this way is a gift, one which design educators can, and should provide. In doing so, students may be able to recognize the role they play in broader decisions about the state of the world and their position within the larger earth-system. Coming back to Jung's Four Functions, accessing this pedagogy means offering students ways of behaving that engage the way we reflect, the way we feel, the way we sense the world around us and ultimately the way we intuit a space (Jung, 2014). In knowing the world in this way, space and time are made to consider the implications design can have on the world. It makes space for gnosis learning.

Design educators are very familiar with frenetic energy and forward momentum representing productivity when in the studio. However, this has not historically always been an indication of success, nor does it need to be. As we see from the theory explored in this thesis, big ideas and ethical judgments often come from contemplation. The work undertaken in this thesis poses a more relational pedagogy found in contemplation and positions it as an integral component of a balanced education. If we want to educate designers who understand the natural world around them, and thus to design for it, we must give them opportunities to do so. We also must, in many cases, support them in understanding how to integrate their understandings of nature to inform their designs. It is not enough to expect them to just be in nature, we must too help them focus their attention to bring the full context of these relationships into view.

Appendix One

The last chapter of this work briefly points to digital documents that have been created to provide broader access to the prompt research as spelled out in the earlier chapter “Making Accessible Prompts”. These documents are in the process of being formatted and made available through the DESIS Lab Emily Carr University’s ‘Resources’ page. (DESIS. 2016) These assets are designed to allow educators to download in parts or whole, to modify and update prompts and prompt stems that I have created for use in their own programs. These prompts are arranged from “closest to the classroom” to “closest to wilderness”. This is to empower educators to pick and choose activities and prompts which best compliment their program while still maintaining elements of Gnosis education.

I hope to provide open access to this research and learning so that educators may be able to begin seeing Gnosis learning moments within their students work and hopefully open their design programs up to other such opportunities. The prompts are designed to be printed on standard desktop printers, are low fidelity enough that they can be assembled quickly and are formatted as fillable PDFs. Each of the prompts is scaled to include a small, medium and large amount of input so educators can choose how much the premade prompt the wish to include. They can also copy and paste existing prompts or change dates, times or values. This should allow the prompts to be flexible enough to be applied in multiple contexts.

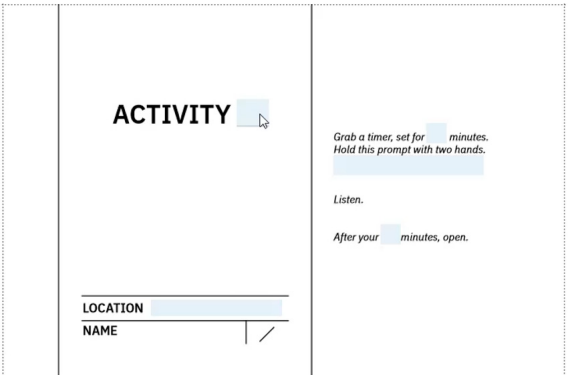

Figure 13 - Fillable Prompt

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Find somewhere to sit alone.

Grab a timer set for five minutes.
Hold this book with two hands.

Breathe deeply.

Once your five minutes is up, flip this book over, open and begin reading.