Material Language

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Material Language: An Approach to Acquire Literacy of the Inarticulable

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Abstract: This thesis frames analogies of language acquisition as a lens to examine materiality and explore how to make and find meaning with and through material. By means to conceptualize a so-called 'material language,' following a practice-led and place-based methodology, this work showcases two main case studies that investigate how we can become active agents in our relationship with the material world.

Keywords: material, materiality, language, literature, poetry, vernacular, fluency, literacy, agency, empathy, place, ecology, responsibility

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Positionality

... or on positioning myself as a *designer*,
a *daughter*, a *friend*, a *human*, and
a *cluster of particles* in this universe."

Geographically speaking, my research and the content of this thesis have been conceived and conducted on the unceded and traditional territories of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh Úxwumixw (Squamish) and səl̓ilw̓ətaʔɬ (Tsleil-Waututh) peoples - the land and place I work and live on in Vancouver, British Columbia. In my heart, this work culminates within myself and radiates to the various places and people on Earth that I came to call home. As this research emerges from my personal experiences with both *material* and *language*, this thesis can be seen as a manifestation of understanding place and rootedness through experimental creative practice. It is an attempt to situate myself in this world, geographically, emotionally and ethically, to understand who I am and which contribution I want to make to Earth.

As a designer, maker, and design researcher, I seek to learn through *material*. It connects the dots, inspires me, and lets me explore materiality in its rawest form through making. These interactions do not only mean exploring the properties, processes, and manufacturing techniques of materials but also invite me to explore my own relationship with them.

Exploring new materials is like discovering new languages. As a German whose first memories are running down steep stairs in an old house in Great Britain or remembering to understand German, though refusing to speak it to friends and family, the concept of any linear origin seems distorted.

Languages are portals through which places become part of me. Learning new languages has set me on this ambiguous path.

"First is knowing without words. Then comes language."
(Blaisse & Cronin, 2017, p. 171)

What unites material and language to me is that they can both be intimate forms of expression and tools for imagination. Together they significantly shape the way I approach my practice as an interdisciplinary designer.

Glossary

agency
The ability to act, influence, mediate or intervene.

collaboration
The practice of joining forces and working together with a common purpose, goal or motivation.

design
The imagination and vision for new conditions of living and being on Earth, and the acting upon it.

embodiment
The representation of something abstract such as knowledge, personality, or culture in a tangible or visible form.

empathy
The ability to understand and share emotions and feeling with someone or something else.

language
The system that enables us to transmit knowledge and thoughts across minds despite space, time, or chosen medium. As the principal method of human communication, it is applied through four foundational skills: reading, writing, listening and speaking.

literature
Written work that speaks to the soul.

place-based design
Design that relates to place and acts within local communities and collective ethics.

material
The concept of matter, the plurality of materials of all forms, states of aggregation, conventional and unconventional - the concept of material as a whole.

Material
The capitalized term refers to the proposed language "Material".

materiality
The holistic perception of material, including interpretation and experience.

material proposal
An imagination or idea of a material outcome based on prior empirical or theoretical knowledge.

material language
The system that enables us to transmit and receive knowledge about materiality, material agency, emotions, memories and to understand the connections between humans and the material world within tangible and intangible dimensions.

material literacy
Literacy, by definition, describes the ability to read, speak, listen and understand a new language efficiently. Within this research, it displays the capacity to decipher code of material.

material fluency:
Fluency, by definition, describes the ability to create something in a language. Within this research, it showcases the competence to process and articulate content that has not been able to be spoken of or has not existed before.

material poetry
The installation of meaning into material.

material vernacular
A place-specific creation of meaning with material.

Language is a construction of words, meanings and contexts. When composed in certain ways, language inspires, invites, or invents. My work inquires into analogies of language acquisition as a lens to examine, reveal and re-assemble material properties that transcend those habituated in predominant design practices.

This thesis makes two contributions. First, I contribute methods for material exploration guided through phenomenology and practice-led research approaches that identify the concept of *'material language.'* Here, I showcase my personal practice of exploring material from invasive species, ceremonial plants and more, all of which informed the second contribution, introducing material language as a design tool.

Exploring the analogy of studying material as fulsome language offers alternative visions and didactics for comprehending and reflecting upon the relationship between material and meaning. It allows for reading ingrained codes, understanding context, and practicing conversation on material agency and futures. By positioning this research as a cross-disciplinary investigation into learning *Material*[1] as a second language, it aims to nurture responsible and reciprocal communication within the creative field and beyond while encouraging practitioners to act as narrators and interpreters.

Accessing material as a language invites us to see through its physical state and analyze how it embodies diverse knowledge and communicates through our senses. Materials commemorate the land, history, culture, and people while carrying environmental, economic, spiritual and personal values. Through seeking to decipher those codes and connections, this thesis research utilizes methods that acknowledge materials' respective locality.

[1] While I claim to assign the familiar concept of language to this particular term within my research, I aim to use 'Material' the same way any other conventional and unconventional language would be utilized in this sentence. (e.g. learning *Italian* as a second language; learning *French* as a second language)

Material

Language

Material is the essence of our world. It allows us to form today's civilization while teaching us about our past and helping to imagine our future. However, in the age of ecological crisis, the use and care of material needs to be conducted more considerately than in predominant times and goes further than the creation of everyday objects and cultural artifacts.

Addressing *material* thoughtfully means promoting responsible approaches to production, manufacturing, harvesting, sourcing, research and design. It goes beyond creating new products for consumption or leading technological innovation. It means finding solutions to deal with resource scarcity, global pollution, environmental exploitation and extractivism (Parks, 2021). It demands that we find alternatives and sustainable replacements for essential material goods while questioning their respective physical existence.

Reveal

Facing climate change raises the question of how much we truly value our planet. Taking action to protect what we love – such as the land that we stand on and the people that are with us - means advocating for a client that is not able to communicate, to intermediate for a generation that is yet to come, for species that we don't know of, and for places we might never see (Fleming et al., 2016, Chapter 16). Bridging the western perceived binary worlds of *material* and *human* needs conscious and cautious intention, rigour, and urgency but overall will "demand the most selfless kind of love to do right by what we cherish, and to give it the protection to flourish outside our possessive embrace" (Barbara Kingsolver, 2003, p.8). Eventually, it asks us to understand how entangled the material and human world is and, after all, realize how these worlds are not separate but define the world we live in collectively, while being "co-dependent and co-evolving" (Wheeler, 2006, p-41).

Humans like to possess. Whether things, property, landscapes, whole continents, or even concepts, relationships, and the 'other' - humans will always thrive on calling it their own. Without knowledge of or our intention to, we regard possessions as extensions of ourselves (Belk, 1988). The objects we possess, the private and professional networks we can draw from, the money we have to live a life we desire or the reputation we gain are all possessions that support our fragile sense of self. In contemporary times of capitalist and data culture, this tendency raises the question of where "possessing" faces its limits. Throughout history, humans have exploited, oppressed, interfered and diminished whole working ecosystems - intentionally and unintentionally[2] - with alarming effects. While the term ecosystem describes geographic areas where organisms work together and depend on each other to form a system of life[3], some scholars tend to apply the term *egosystem*[4] instead to address our present societies of individuals, or *egos*, rather than collectives. To move forward, we need to eliminate this habit of self-centredness and shift our behaviour towards ecology, work collaboratively, and rethink our relation to the natural systems to reveal the interconnectedness of material and human.

[2] One example being 'ecological imperialism' which was coined by Alfred Crosby as means to describe the way European settlers have successfully colonized other regions by purposely and incidentally introducing animals, plants and diseases which led to dreadful shifts in ecology and to population collapses in the endemic peoples.

[3] Definition by National Geographic

[4] As mentioned for example in Bruggeman, D., Gatzen, P., Haar, J. T., & van der Voet, H. (2018). *Dissolving the Ego of Fashion.* Amsterdam University Press.

Expand

> "'design(ing)' entails both: locating and challenging the conditions of our current realities, while creating alternative conditions that allow for new realities to happen."
> (Pais, 2017, p. 26)

As designers and creators, we have the ability to envision a future that will meet the suggested principles for a responsible world through making practice and prompting discourse. To do so, it becomes crucial to investigate our relationship to material and learn to understand it from an ecological, ethical, and cultural perspective. Attempting to become active agents in our relationships with the material world, design can expand our awareness of nature and ecological competence (Orr, 2004, p.32). The goal lies hereby not in creating new things again, but rather creating a human presence that honours and respects life on Earth with all its human and non-human inhabitants (Orr, 2004, p.4).

Slow Design[5]*, More-Than-Human Design*[6] and *Ecological Design*[7] show precedent for designers' ability to create responsible and resilient futures by embracing uncertainty and

[5] A unique and vital form of creative activism that is delivering new values for design and contributing to the shift toward sustainability" as outlined by Carolyn F. Strauss and Alastair Fuad-Luke

[6] As defined in Ron Wakkary's book "Things We, Could Design for More Than Human-Centered Worlds", 2021, where he outlines a more-than-human design practice that he calls *design-with.*

[7] "Ecological design, ... requires not just a set of generic design skills but rather the collective intelligence of a community of people applied to particular problems in a particular place over a long period of time." (Orr, 2004, p.9)

vulnerability. These design movements, which I understand to all carry the common ideology of designing for “more-than-one,” have paved the way for my research. Within this work, design can expand - our awareness of nature, our willingness to change and our responsibility to Earth with all its human and non-human inhabitants.

Reflect

> "My 'own' body is material, and yet (...) is not fully or exclusively human. My flesh is populated and constituted by different swarms of foreigners (...) It is thus not enough to say we are 'embodied.' We are rather, an array of bodies, many different kinds of them in a nested set of microbiomes."
> (Bennett, 2009, p.112-13)

From the objects we engage with to the bodies with which we do so, this work addresses a spectrum of material conditions and characteristics that would seem to render the definition of material universal, yet the respective languages we use for it unique. While we are material, it is fair to say that we are all embodied by various actors and simultaneously embody exclusive knowledge about who we are, what drives us, and where we are going. Our DNA, personality and sole existence as humans reveal endless information through the application of non-verbal expression. Undoubtedly, we cannot decipher these codes at first glance, but what assists us is the use of empathy to obtain specific knowledge about the other.

Empathy is a gateway to perceive human embodiments and supports the search for understanding humans beyond their appearance, voice, or actions. To empathize is, by definition, to feel into something else. It is an act of disembodiment and destabilization of the boundary between the two. It offers the possibility to *listen into* the other respectfully. As crucial as empathizing with each other is the practice of empathizing with further embodied natures. Respectively, material.

Nurturing an empathic relationship between *material* and *human* expands on the notion to imaginatively embody the other while establishing a moral sensibility of the self and appreciation of the relationship. However, empathy can decrease with distance (Benkler, 2017, p.129). As we remove ourselves from our locale’s material variety, we become estranged from the habitat of our own and the other lives with which ours are inextricably entwined (Abram, 1996, p. 40). “To empathise means to feel, imagine and think across differences. With empathy we are no longer alone, but sharers in a common world.” (Pestana et al., 2022, p.43) Finally, to reflect on our own inhabited embodiments means finding ways to increase empathy towards materials and their contexts.inhabited embodiments means finding ways to increase empathy towards materials and their contexts.

Engage

> “The properties of materials are objective and measurable. They are out there. The qualities on the other hand are subjective: they are in here: in our heads. They are ideas of ours. They are part of that private view of the world which artists each have within them.” (Pye, 1968 p.47)

How do we listen into material the way we have learned to listen into or empathize with other humans? We perceive material, and with it objects, through our senses. Whenever sensory receptors, such as sight, hearing, smell, taste, touch, will detect sensory stimuli, a sensation occurs. Perception, on the other hand, involves interpretation and holistic experience[8].

Materiality is subjective, but "the properties of materials (...) are neither objectively determined nor subjectively imagined but practically experienced" (Ingold, 2011, p.30). Thus, the dimensions in which we explore a material are somewhat universal. However, it depends on the individual's preference how the exploration begins. Therefore, I asked myself how do I personally engage with materials? What are the prominent material dimensions that speak to me?

For me, the first stimulus that comes to mind when experiencing material is its touch - the sensation that arises through exploring tactile surfaces. This might be because makers and designers often appreciate tactility before other elements of a material or simply a tendency that developed during my lifetime. Hot and cold, hard and soft, stiff and elastic, flowing and restraint, smooth and coarse, light and heavy - all are parameters for tangible exploration of material. It reveals its functionality, its possible purpose and paints a picture of where it could be encountered.

The second stimuli I would consider would be the visual sensation of textures, detecting brilliancies such as gloss, opacity, or even transparency of a material[9]. The personal prioritization of touch to visual might seem odd as we mostly see before we feel and will not be shared by everyone. But, first touching a piece of wood before looking at its wood grain in detail is how the material seems to speak to me.

[8] Definition from 5.1 *Sensation versus Perception in Introductory Psychology* (Open Source) by authors Kathryn Dumper, William Jenkins, Arlene Lacombe, Marilyn Lovett, and Marion Perimutter

[9] These insights were explored in further detail in Rognoli, V., & Levi, M. (2004). *Emotions in Design through Materials. An expressive-sensorial atlas as a project tool for design of materials*., which has informed the spectrum of tangible and visual stimuli examples in this section

Even though sight and touch might be the most prominent senses to engage with material, smell is another explorative way to perceive material. Here, the sensation can either indicate the distinct components of the material or release cognitive stimuli such as memory. A previous material design of mine explored this olfactory element in particular, as it created the smell of chocolate, which would provoke positive emotions and memories of childhood and comfort[10].

Lastly, the perception of material through sound might be the least explored for me personally, yet the sound of wood and marble would clearly be differentiated as defining characteristics. But although these expressed sensations are all real, as in "describable" and "relatable," the perception of material can go far beyond these stimuli.

In order to effectively empathize with material, we do not need to identify all of these sensory parameters in great detail. Instead, we need to understand that materials might as well embody emotions, intentions and carry agency - attributes which we often consider to be entirely human (Curry, 2011, p.2-3; Knappett, 2008, p.ix). This theory of material agency asks to *dematerialize material* by means to see through its physical existence and detect its spiritual, moral, ethical, economic, ecological and political codes (Boelen & Kaethler, 2020, p. 14).

Engaging with all senses brings us to a deeper state of experiencing knowledge. We learn to understand this embodied complexion of material through active perception rather than passive absorption (Cavanaugh and Shankar, 2017, p.6) of our relationship with the natural and built environments. By decentering ourselves as humans in this dynamic, we create space to ethically engage with material surrounding our bodies and living environments (Bruggeman et al., 2018, p. 3) - space to *listen in, empathize, experience* and *understand.*

[10] This research was conducted for the degree of Bachelor of Arts at the University of Applied Sciences, Schwaebisch Gmuend in 2020. It explored a material development with cacao-husks and resulted in the development of a biodegradable filament for 3D print and thermo-deformable board-material and has received an Honourable Mention at MaterialPreis2020. https://chiara-schmitt.com/macao-sense-the-aesthetics

On Material

Engaging with material is much more than solely engaging with possibilities of creation. It is much more than building houses, developing products, finding functions and communicating aesthetics. It is about dealing with the effect of and affection for material. *Human* and *material* are irretrievably intertwined. Ontology explains this as an eternal cycle of influence, ecology as a warning of what will happen if we do not commit ourselves to this relationship.

Investigating material, and with it materiality, follows the search for new and eco-conscious solutions for the diverse material needs and resource limitations of today. Circular material developments have arrived at various interdisciplinary institutions and progressive industries in the last decade. While there is an undeniable emergency and urgency of systemic change, material investigations respond by questioning resources and exploring new ways of production.

The Slow Design Principles mentioned in this part - to *reveal, expand, reflect,* and *engage* - capture the need for shifting our behaviour towards ecology while increasing our awareness of nature and responsibility to Earth. It asks us to reflect on our own inhabited embodiments and create space to engage with material surrounding our bodies and living worlds ethically.

Although they are equally important, two remaining Slow Design principles have not been addressed in part 1 - to *participate* and *evolve*. But to engage with these actions regarding material requires a medium to intervene between the two worlds. This medium is what I personally see in *language*.

↳ [Figure 1] shows material experiences with sage.

Material

Language

Language enables us to transmit knowledge across minds - despite space, time, or medium. As the principal method of human *communication*, it allows us to learn, question, and provoke while building relationships and making sense of the world.

It is a manner of *conversation* and *discussion* but, overall, a mode of creating and interpreting thought. As a "system of thought" (Noam Chomsky - Language and Thought, 2015, 01:04), we engage with it every day through either speaking, writing, reading, or listening.

Through language, we can express ourselves and articulate who we are as individuals and collectives. Overall, language has the power to unite but also divide.

Language of Place

> "Language is a great container of meaning, the manifestation of thoughts.[...] It can be both an extreme form of freedom and an instrument of control. Words can be weapons of subjugation to a particular ideology, a political or commercial strategy. To defend ourselves from persuasion and manipulation we have to take into account social, geographical, and above all, historical coordinates, by connecting words to our roots." (Fantin, 2017, p. 76)

There are about 7,000 languages spoken worldwide with different phonetics, vocabularies, and structures. In the course of evolution, languages have emerged, developed, changed, and fused but have also been displaced and lost. The region where this work resides, British Columbia, is known to be home to approximately 50% of Canada's First Nations' languages in the present-day[11] and has been to even more before European settlement. Restrictions such as the prohibition of practicing their languages by colonizers to assimilate the Indigenous peoples have led to the ongoing endangerment of Indigenous languages in Canada. We count 573 known extinct languages[12] no longer spoken or studied globally. But as a language dies, much more is lost than a means of communication as "Language is the dwelling place of ideas that do not exist anywhere else. It is a prism through which to see the world." (Kimmerer, 2013, p.258)

Cognitive scientists[13] are investigating both spoken and extinct languages to learn whether languages shape the way we think, position ourselves in the world[13], enable us to talk about complex concepts such as the future and the past, determine categories or even sense time[14]. This research picks up an ongoing and ancient debate of how much language can reveal about ourselves[15]. Whether we can distinguish between more than one colour-shade, assign rather a masculinity or femininity to certain objects, or think in binaries or cardinal points - all these thought processes have roots in the language we have inherited. To acknowledge those living biases, we need to start connecting the words we choose to context. As the "co-existence between humans and other-than-humans, are experienced in diverse contexts and manifests in verbal and non-verbal communication" (Siragusa and Vitanen, 2021, p.3), the approach to and use of language within the realms of design show potential as to how our roots and relationships to material relate to language.

[11] This was shared in the panel "Building Relationships Through the Language of Place" hosted by Emily Carr's Aboriginal Gathering Place, in partnership with the DESIS Lab which I attended in the spring of 2021. It is also confirmed here: https://maps.fpcc.ca/

[12] In 2019, according to the Cambridge University Press database on extinct languages https://linguistlist.org/forms/langs/get-extinct.cfm

[13] Such as Lera Boroditsky, professor in the fields of language and cognition. She is currently one of the main contributors to the theory of linguistic relativity, a principle suggesting that the structure of a language affects its speakers' worldview or cognition, claiming that people's perceptions are relative to their spoken language.

[14] Discussed in Gaby, A., Lum, J., Poulton, T., Schlossberg, J. (2017). What in the World Is North? Translating Cardinal Directions across Languages, Cultures and Environments. 20. 1-7. 10.5204/mcj.1276.

Language and Material

> "The production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men, the language of real life."
> - Marx and Engels "Thesis on Feuerbach"

As the primary method of human (verbal and non-verbal) communication in tandem with material, seen as the substance of humans' physical existence, language invites us to explore a liminal space that addresses both the tangible and intangible dimensions of our world. While *language* calls to decode, translate, interpret, and tell stories, *material* calls to express, create, demonstrate, model, and hold narratives. Bridging these two dimensions dismantles conditions that apply to both: its creation, absence, and translation. This liminal space where language and material intersect is where both dimensions are explored, and *material language* resides.

[15] As in Boroditsky, L., Gaby, A. (2010). Remembrances of Times East: Absolute Spatial Representations of Time in an Australian Aboriginal Community. Psychological Science, 21(11), 1635–1639. http://www.jstor.org/stable/41062425, where representations of time in Pormpuraaw, a remote Australian Aboriginal community are being described whose representations of time differ strikingly from all others.

[16] Such as Holy Roman Emperor Charlemagne said "To have another language is to possess a second soul"

The nature of language is always in a state of evolution. It will be revised, renewed, rethought, and ultimately recreated as a mirror of circumstances and culture. Whenever humanity introduces or is introduced to something new, such as a concept, an object, a condition, it demands a name to make it speakable, communicable, and engageable. As Fletcher and Tham introduce: "*Languaging* means the co-creative relationship between communicating, thinking and doing." (Fletcher and Tham, 2019). Here the term "languaging" depicts an excellent example of a neologism, a creation of a new word, that evolved from the urgency to refer to a concept, here "the process of making meaning and shaping knowledge and experience through language" (Swain, 2006, p.89), that is new and not priorly received.

The *creation* of language shapes the conditions of our reality. These processes can be highlighted throughout the history of any language where words come and go, just as they need to in order to support human communication effectively[17]. On the other hand, the creation of material happens under similar circumstances. As the matter of which we establish new ways of living and being in the world, material's creation reflects the demands of its society and environment. The creation of either language or material shows the *adaptive* nature of humanity.

> "Language is a tool with which we can reveal ourselves to our fellow human beings. However, Language, or rather the absence of Language, can also divide (...)." (Abukar et al., 2021, p. 8)

The *absence* of language, or inability to apply language, can render human relationships distinct. It can challenge how we engage with others while excluding us from social practices and even entire communities. Whether or not the absence of language is predetermined, such as through political or social forces or lacking a specific fluency - the absence of language can divide. On the other hand, the absence of material presents the same constraints. It challenges future generations and is currently experienced whenever resources are exhausted due to irresponsible extraction and contemptuous overconsumption. The absence of one or the other, language and material, shows the *interdependent* nature of humanity.

> "Words take their meaning from a context of use and dry up if they are separated from the people who use them. This suggests that we should learn to be careful with them." (Higgs, 2003, p.94)

Translation can never really be 'detailgetreu' (German for "detail-loyal"). Translation will always attempt to capture a thought, notion or concept that lives in one language but seeks an equivalent in another language. But this attempt allows humans worldwide to gather together and understand each other. The translation of language unites. It provides an exchange of understanding different cultures and expanding otherwise inaccessible systems of thought. Likewise, though, the translation of material unites by the same means. It invites us to look beyond materials' components and properties and instead perceive its inhabited forces and meanings. Like language, some elements may remain untranslatable and exist within their own realms. But overall, the translation of both language and material shows humanity's capacity to achieve *literacy* of that which is foreign – a means of connecting to cultures, peoples, and material intelligences beyond those we were born into.

[17] A striking example is the history of "blue". In 1858, William Gladstone discovered that Homer would describe the ocean and sheep as "red" which made him believe that he must have been colourblind. In fact, Homer wasn't colourblind at all, there was simply no word yet for "blue". As the perception of colours has remained the same the conclusion was that there simply hadn't been the urgency and possibility to differentiate one from the other.

On Language

Concluding Part 1, I stated that to *participate* with and *evolve* (p. 23) the human relationship to material asks for a mediator that can communicate across minds while reflecting locality and rootedness and is as dynamic as material.

Language forms ideas and thoughts, yet changes, fuses, disappears and gets lost. The similarities to material are not obvious at first glance but become striking to me when examined in detail. The power of its absence, creation, and translation are even more than means of uniting and dividing. It allows us to actively shape the conditions of our reality while demonstrating human adaptability, interdependency, and literacy capacities.

↳ [Figure 2] shows my material exploration with wood ash and milk. The contrast of these materials creates conversation.

Methodology

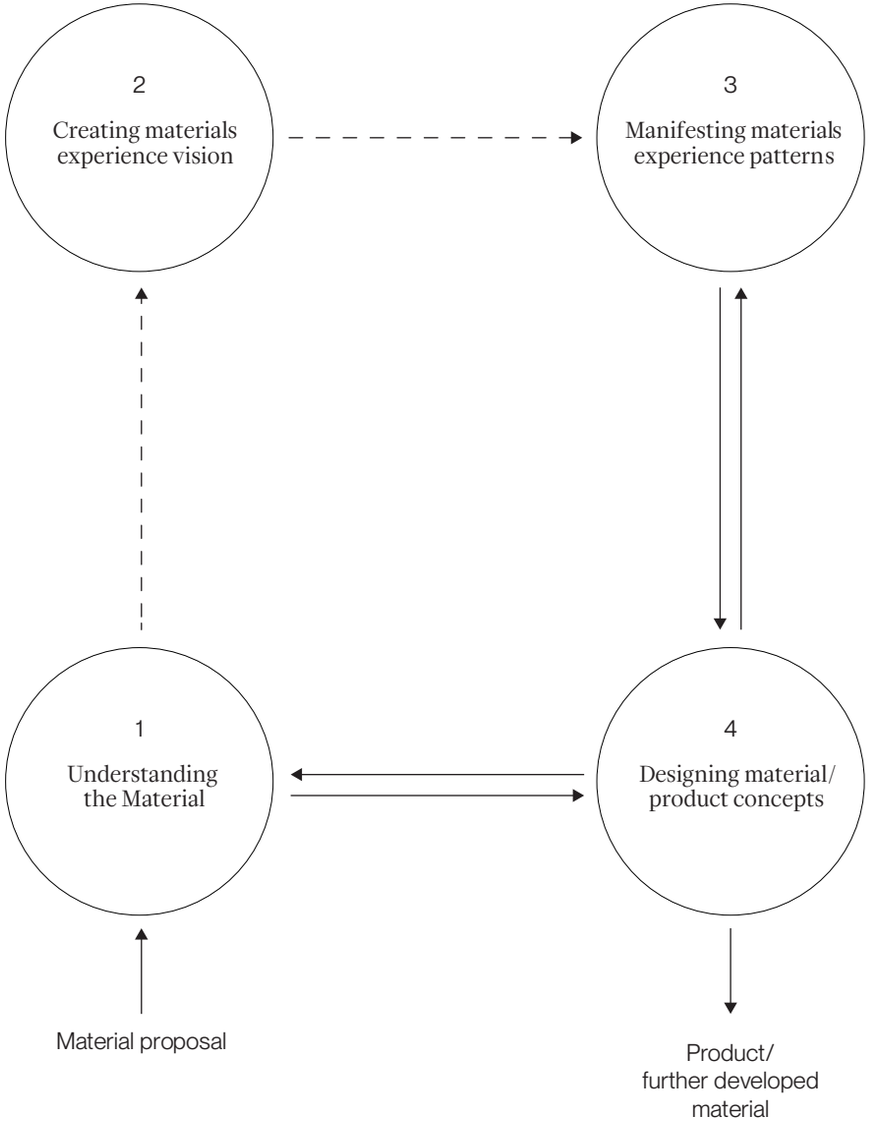
This thesis research is practice-led. It embraces the ambiguity of newly discovered paths and the openness of momentarily appearing landscapes within research-creation. It is guided by making and grounded in understanding where the applied materials, knowledge, and techniques are derived from Earth. It captures a transitional moment from Germany to Canada, a worrisome time of living within a pandemic and an intriguing chance to get to know a new surrounding from the ground through working with cedar bark, maple wood, sage, rosemary, blackberry, algae, fish skin, oyster shell, scotch broom, flax, as well as paper and cloth.

This research practice draws from the *Material Driven Design (MDD)* methodology (Cleries et al., 2021, p.22.) complemented with methods of phenomenological research, and manifests the *Slow Design* principles (Strauss and Fuad-Luke, 2008). The MDD method itself allowed me to examine the previously mentioned materials as "material proposals" (Karana et al., 2015, p.39,) such as premises to create paper with algae, biotextile with rosemary, leather with fish skin and bricks with oyster shells and more. The observed characteristics would be analyzed, synthesized and probed for material experiences. From tangible to abstract and back, the trajectory of this applied method led to various further developed materials, product concepts and knowledge-creation [Figure 3]. Comparisons between language and material led to language-informed research approaches, which included evaluating semiotics of material and further analyzing its social, political, historical, or biographical context.

Meanwhile, the Slow Design principles to *1. Reveal, 2. Expand, 3. Reflect, 4. Engage, 5. Participate,* and *6. Evolve,* supported a holistic vision of design, which considers the origin of the material proposal, research progression and outcome, including ethical aspects and social factors and further the short and long-term effects of the design and research-creation itself. To emphasize the extent to which the Slow Design principles align with the research journey, they defined the sections throughout the first part of this document.

This research flourishes from engagement - through collaboration and conversation, it creates a discourse from multiple lenses. It also thrives from mistakes - material explorations that go wrong, mistranslations that lead to unexpected outcomes or sudden bursts of excitement that pivot the research direction. Finally, it is through personalizing the practice that it progressed towards an array of explorations with material, through which the concept of material language evolved, defining spaces such as *material poetry* or *material vernacular* as expressions of what I understand as the inarticulable ways material communicates with the world.

As a reader of this document, you will encounter various approaches to exploring what material and materiality can be. The stated methods I utilize in all of these investigations are by means to separate the abstract meaning and existing knowledge from the tangible matter by crushing, boiling, soaking, liquifying, solidifying and reforming the raw materials to disillusionize from what is familiar and get to know the matter in a novel way. All these processes are research-driven yet not scientifically accurate and rely heavily on kitchen, garage and garden tools instead of elaborate lab equipment.



↳ [Figure 3]: Material Driven Design Method as described in "Material driven design (MDD): A method to design for material experiences" (Karana, 2015).

As my main inquiry is to understand how language relates to materiality, this research addresses the following questions.

→ *What happens if we view materials not just tangible?*

→ *What happens if we understand materials as fulsome language?*

→ *How might material exhibit languaging qualities, either alone or in conjunction with other registers of communication?*

Material Language

Abstractions such as emotions and perceptions can hardly be described if there are no established means of communication. We most likely borrow vocabulary from other sources if we lack descriptive words such as depicting colour with what it resembles (e.g. ocean-blue, moss-green) or fragrance with its possible compositions (e.g. earthy, floral). The examination of material as fulsome language allows us to see ourselves as *translators, interpreters, speakers,* and *storytellers* within the realm of its application.

Framing this inquiry as a language is a way to explore the concept as a similar construct. It illuminates how phenomenological approaches to materiality can elucidate meaning-making and initiate value production. This work is a proposition of learning *material language* to acquire literacy of the inarticulable[18] to complement ongoing investigations of semiotic understandings of material.

[18] The term 'inarticulable' was about 'untranslatables'. Here, words are explored where translation in foreign languages cannot be authentic. Abukar, Untranslatable Terms of Cultural Practices.

→ Case Study 1

Writing Material Poetry

"In a way, you are *poetry material*;
You are full of cloudy subtleties I am willing to spend a lifetime figuring out. *Words* burst in your essence and you carry their dust in the pores of your ethereal *individuality*."

- Franz Kafka; Letters to Milena

What Frank Kafka addresses to his love Milena Jesenská is what poetically captures the essence of this research's inquiry: how can we, with Kafka's words, "figure out" the "cloudy subtleties" of materiality where every element of meaning, symbolized by "words," bursts into a materials' physical "essence"; where it carries fragments, the "dust," of it in its subjective appearance and existence, its "ethereal individuality."

Utilizing literature to explore these conditions means engaging with a method of written language that is very personal and subjective and asks for interpretation and reflection within the self, society, and the world. It means encountering a method that mirrors humanity at the point of creation in an intimate yet impactful way. Capturing the current *zeitgeist* offers scholars and individuals insight into the past from a personal lens. As it often outlives its creator, it needs to speak for itself without any explanation and right and wrong translation. Literature as a form of art enjoys the freedom to escape conventional rules of language and objective facts through its poetic license to create a targeted effect.

As a particular form of written language, poetry can be lovable, joyful, nostalgic, dark, and yet beautiful. By expressing feelings and ideas through its choice of words and arranged meaning, sound, and rhythm, poetry is a form of literature that has the power to evoke emotional responses that exceed the written words. Within the realm of *material language*, it asks whether materials can act in place of words for *writing poetry*.

We interpret or *read into* poetry, drama, fiction, lyrics, or even conversations, actions, and gestures consciously and unconsciously. To do so, we draw from our experience, upbringing, and even education by looking for symbols and indicators that help us reveal the multilayered meanings within. The breadth of this thesis research includes four separate investigations regarding the engagement with abstract, non-literal emotions through material poetry and evolved out of the intention of exploring emotions through material practice.

Alongside short descriptions of all, the two investigations I will elaborate further are excerpts of this body of work that illustrate the spectrum on which this work resides. From treating literature as formation tools of new material in both cases, one endeavour is to create material with literature, the other to create literature with the material—both as means to expose the poetics through material language.

Material *Poetry* → The installation of meaning into material.

→ Investigation 1 - Chances and Boundaries

Material Exploration with Sage

The first investigation focused on the herb sage and the application and implications of its use. It demonstrates dealing with a sacred and ceremonial plant in some cultures while being perceived as trivial to others. It captures the experienced confrontation of my individual, European position towards sage and its meaning in Canada. Transforming the plant into paper allowed me to create a lantern while addressing its meaning through form. It pivoted my own perception of sage, now that I know it has such cultural value in other places. My own experience working with the material made me understand the context; reshaping its form made me feel its agency.

→ Investigation 2 - Scent of Place

Capturing Scent in Paper

This investigation explored my transition to British Columbia through scent. Identifying the scent of place by making paper of plant and tree species surrounding me, such as snowbells, algae, Maplewood, and cedar bark, opened up conversations on home and rootedness. How do we recollect memories and experiences by the simple act of smelling on a sheet of paper? Engaging with participants created the conditions to probe various ways to describe a scent. Here, the used language, sounds, and illustrations revealed how scents could evoke memories in combination with a place.

↳ [Figure 4] shows the tangible exploration of sage leaves, which I have loosely woven together (Investigation 1)

↳ [Figure 5] shows close-up of paper I made with dried sage leaves (Investigation 1)

[Figure 6] shows workshop to "Scent of Place." Here, I asked the participants to evaluate the fragrances of the different papers in regards to place and memory. (Investigation 2)

[Figure 7] shows workshop to "Scent of Place." Inspired by wine-tasting techniques, I asked the participants to: Step 1: Observe; Step 2: Close your eyes; Step 3: Smell through the mouth (Investigation 2)

[Figure 8] shows close-up of paper I made with cedar bark (Investigation 2)

↳ [Figure 9] shows garment and sequins I have created to exemplify the possible application and affection of a material based on rosemary.

"There is *rosemary*,
that's for remembrance.
Pray you, love, *remember*."

- William Shakespeare; Ophelia in Hamlet

→ Investigation 3 - Touch of Remembrance

Material Exploration with Rosemary

Examining rosemary with all of my senses was a process to understand this simple herb's multilayered and unknown meaning. Rosemary has an ancient reputation for improving memory and has been used as a symbol for *remembrance* during weddings, war commemorations, and funerals throughout Europe and Australia. Twigs of rosemary would be thrown into graves as a symbol of remembrance for the dead. Brides would wear a rosemary headpiece, and grooms and wedding guests would all wear a sprig of rosemary. From this, rosemary evolved into a love charm.

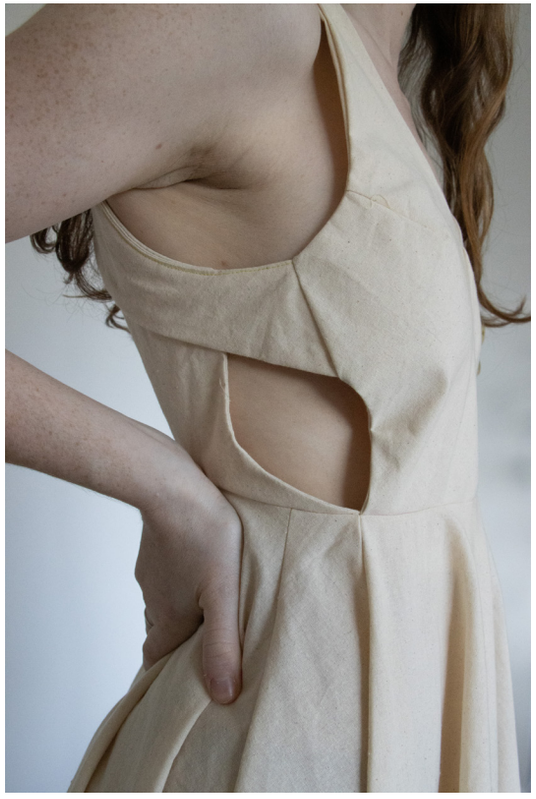
The exploration of rosemary started by not knowing any of this but rather trying to separate my picture of rosemary as solely living in Italian and French cuisine. I started by boiling the herb, crushing it, pounding it, and examining its behaviours in each step. After watching its colour, fragrance, and texture change, it continued to lose resemblance to rosemary as I had always known it, ultimately revealing a precious golden dye colour. Thereafter, when learning the history of rosemary, I identified an opportunity to express its symbolic meaning as a material. I decided to solidify the colour dye with agar[19] and created sequins. Once I stitched them onto a backing fabric, it inspired my imagination. As rosemary used to be important at weddings and funerals, maybe I could implement this tradition in some garment? So I created a garment with the idea of not just *capturing* but really *embodying* the symbol of remembrance, giving it a new form and a new means of expression.

What happens when the symbolism is incorporated into the material? When the material, rather than the plant, stands for remembrance and the symbolic value is transferred to the visual language of the material? How does it change how we engage with artifacts made out of it? How does knowing about a material's history, here its cultural significance, affect our impression of a material such as rosemary?

Speculating through this materiality allows questioning how ceremonies such as weddings and funerals would look if garments would carry the meaning themselves. Could those garments be made to experience timeliness so close to the body as it would be temporal? Can the meaning be embodied and interpreted? Can Material Poetry be hereby created?

[19] A plant-based alternative to gelatine derived from red algae

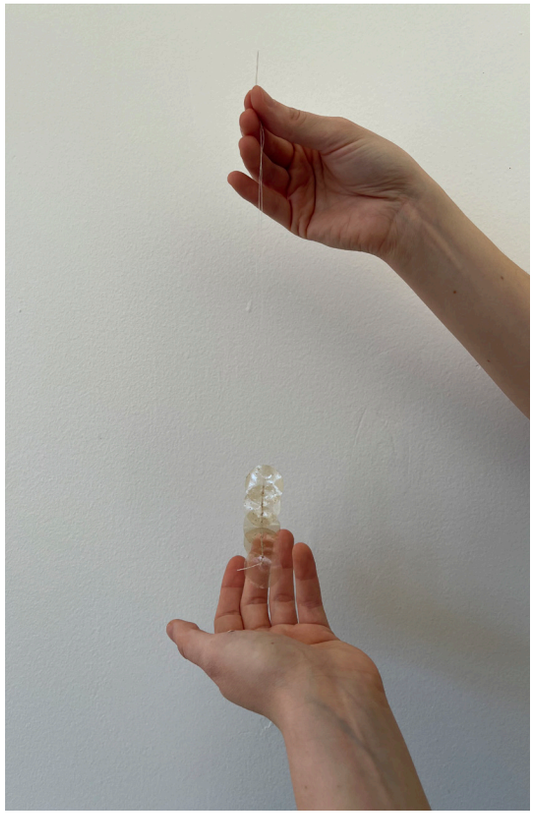
↳ [Figure 10] shows the back detail of my garment design.



↳ [Figure 11] shows the side-detail of my garment design. The soft lines and cut-outs pick up rosemary's coastal preference, romantic and ceremonial reputation. Rosmarinus, which is "dew" (ros) and "sea" (marinus) just needs the humidity carried by the sea breeze to live.

↳ [Figure 12] shows colour dye from boiling and soaking rosemary

↳ [Figure 13] shows the brilliance and colour of the mixture during the drying process.



↳ [Figure 14] shows test-sequins stitched together, to observe potential reflection and behavior in the sun

↳ [Figure 15]

Remembrance is the act of *remembering*, of holding something in mind or bringing to mind, of *recollection*. The notion of "remembrance" is incredibly abstract and intangible as it can be very personal while accepted and practiced within the self. However, traditions of shared grief, such as in Canada's annual "Remembrance Day[20]," show how it can be collective and especially cultural. The symbolic power of rosemary extinguishes as soon as the story is no longer carried forward. Thus, we lose languages because they are no longer spoken and spiritual and symbolic powers as they are no longer carried forward. What once shaped a culture is hard to give to future generations if left indecipherable and uncommunicated.

Literature, and with it poetry, lives from constant rethinking and reinterpretation. It seems as there are endless opportunities for generations to come to imbue materials with meaning uniquely. This approach to Material Poetry offers precedent to live from being universal yet becoming personal for everyone. To live from the fact that the individual and the collective can find themselves in it. As well as to live in the past, the present and the future.

[20] Remembrance Day in Canada is an annual holiday on 11 November. It marks the end of hostilities during the First World War and an opportunity to recall all those who have served in the nation's defence.

↳ [Figure 16] shows twisted paper-thread made out of written letters.

"Writing *letters* is actually an intercourse with ghosts, and by no means just with the ghost of the addressee but also with *one's own ghost*, which secretly evolves inside the letter one is writing."

- Franz Kafka; Letters to Milena

→ Investigation 4 - Embedding Memories & Keeping Stories

Weaving Letters

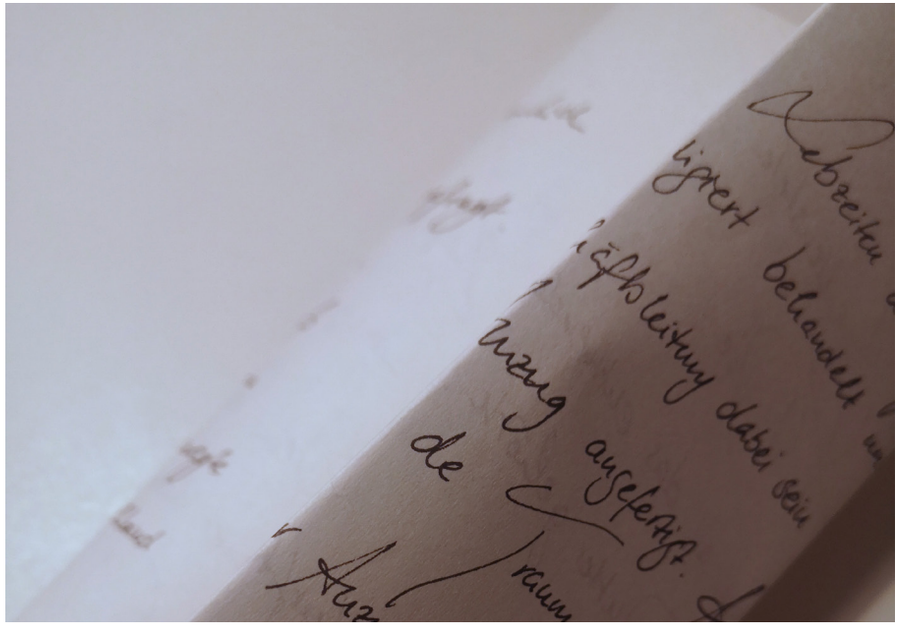
Investigating literature in its most raw and tangible form is a way to understand how paper carries meaning beyond its written text. This work was inspired by personal reflection on stories told to me from my grandma— stories from a war generation, ancestors, roots, and home. I started to put them down on paper out of fear of forgetting these *stories* and *memories* I now attributed to them.

How do we remember stories?
How do we evoke memories?
How do we forget them?
How often will I still be able to hear them?
What if I can no longer recall them?
Will I lose these memories and no longer pass them on?

Only writing down memories does not seem to guarantee their immortality. Language and scripts change over time, and deciphering gets harder as we continue to grow further from their inception. For instance, many letters my grandma still keeps are from past generations and, as such, are written in old German script, which I can no longer read. But how can we learn to remember while time is running fast?

This exploration led me to examine how we can embed memories into artifacts by treating written letters as threads to weave stories. The letters I have been writing myself contain the stories of how my great grandfather came to Germany. In order to see how I could alienate the purpose of a letter, to help me remember, I cut the paper in strips and used a twisting technique to create paper threads. It invited me to create an artifact that would allow me to materialize the stories. The writing, cutting, twisting, and weaving finally manifested the story into my head. Is it the act of writing the letter, reading it, or the fact that they exist? What exactly evokes the memory for us, the content or the context? How can this become poetry? Or is the act the poetry itself?

In the introduction of this investigation, I brought up Kafka's poetry in his private correspondence to Milena. Although 'Letters to Milena' are celebrated today as an essential piece of literature, these words were never intended as a literary work but ultimately a platform in which Franz Kafka could communicate intimate feelings, desires, and thoughts. Letters sealed in an envelope, the context hidden from the world, made them only accessible to the person they were addressed to - Milena. Writing a letter and letting it go is an act of opening up to the other. Throwing away a letter has a very different kind of emotional response. It can speak of pain, letting go or disconnection. But keeping a letter, for years, speaks of the act of never wanting to forget. In Kafka's case, Milena saw the inexpressible beauty and sadness in his words and finally decided that these letters should be accessible not only to her but to the public. She saw the poetry in them, the nature that everyone can find themselves within his words in their very own ways. This artifact speaks of different poetry. Poetry whose addressee is oneself. Poetry that allows reflection inwards to recall the stories within. It becomes a personal and unique artifact that only contains the memory I choose to embed.



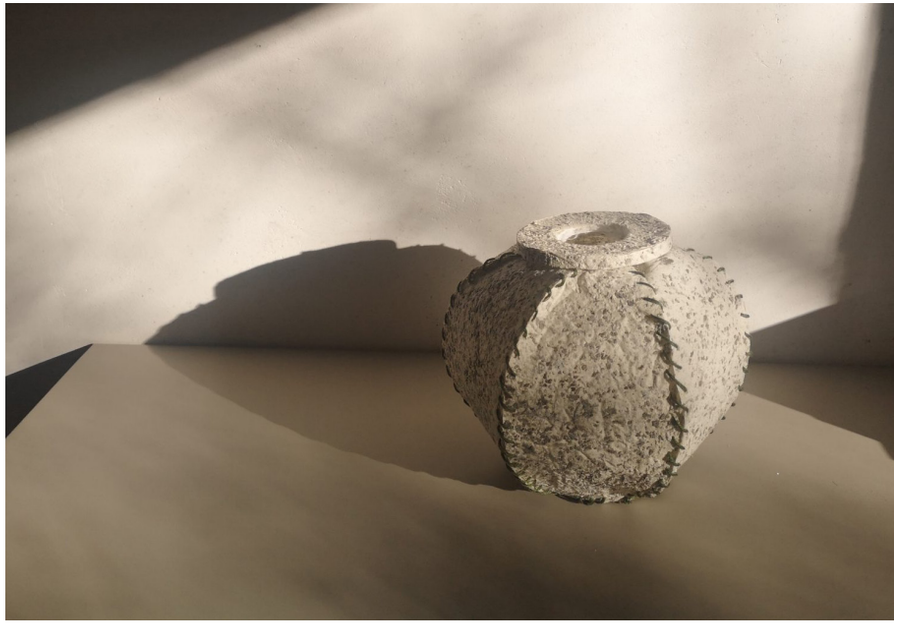
↳ [Figure 17] shows letters that were cut into strips to make paper-thread

Reflection: On Material Poetry

Writing Material Poetry means applying the method of incorporating meaning *into* material. The examples given show how, on the one hand, a story can represent a narrative that can only be deciphered personally by the creator, or in this particular case, the author of the written letters. On the other hand, it shows how narratives can be exposed to the public but interpreted in various and individual ways.

The outcome of the investigation “Touch of Remembrance” can be seen as a universal reflection of the multilayered meanings, the material and shape of the created garment capture with individual interpretations for each of its beholders. It can illustrate cultural integrity through its symbolism of rosemary and garment type. It can present ecological concerns, as it describes a material approach that is temporal. Finally, it can exemplify ethical values through respectful and conscious interaction with the natural world.

The investigation “Embedding Memories & Keeping Stories” showcases a deep and isolated process of incorporating meaning into an artifact as a process of memory-making and storytelling. But can this be called material poetry? Incorporating a distilled meaning, even rosemary’s symbol of remembrance, into a material is comparable to picking up ink and writing on a piece of paper. The act is poetry. The artifact, a piece of paper or garment, a tool to remember. The mediator in place material language.



↳ [Figure 18] shows lantern created in Investigation 1 "Chances and Boundaries." Creating paper with dried sage leaves eventually led me to explore sage's meaning globally and write poetry with its texture and form.

→ Case Study 2

Speaking Material Vernacular

"“To focus means to *gather* together, whether rays of light or a group of people.”
(Higgs, 2003, p.4)

Utilizing speech to explore how place-based narratives can be received means engaging with a form of spoken language that is seen as the most obvious yet sometimes most intimidating way of communication.

Whoever speaks out loud shows vulnerability. This person will be seen, heard, and present in this very moment. Although it conveys confidence and intention, spoken language does not only mean producing politically driven and rhetorically excellent speech. It also means having a *conversation* and *discussion* - two elements that shape democracy and fulfill our moral duties to engage with the other and act not just on behalf of ourselves. The specific language we use in these cases informs how we communicate in an impactful way.

Our way of talking reflects our geographic and social influences whenever our respective language has been developed throughout our life. The spectrum of these effects ranges from global to local. Who grows up in a country that is not native to their parents will hear different languages or dialects throughout their upbringing. These impacts can be passed on for generations.

Someone who grows up in a specific country region might develop a dialect different from other speakers of the same language. Intonation, pronunciation, and vocabulary are parameters with which vernaculars can be identified as the “language or dialect that is most widely spoken by ordinary people in a region or country.” (Collins, 2020). As a particular spoken language, vernaculars can be conversational, direct, informal, welcoming and yet entirely regional.

Vernaculars relate to a commonality in a particular time, geography, or group of people. They evolve as a common language of ordinary speech that is collectively understood and defined by its surroundings.

Material *Vernacular* → A place-specific creation of meaning with material.

↳ [Figure 19] shows translucent fish leather

Collaborative Material Exploration

We engage with materials constantly though we hardly recognize their origins and rawest form. We use textiles and wood as designers and material practitioners, though we would rarely refer to those materials as “fibre” or “cellulose.” We compare materials by comparing them with what we know. Something can “act like wood” or be “textile-like,” but we hardly ever go beyond these comparisons. However, in search of new materials, we might look for resources outside the known and explore new engagements with the material world.

The desire to re-imagine our relationships to materials and place as makers and designers instigated the founding of *pl.lab*, the place-based material lab, by Christa Clay and myself in June 2021. Calling the collective endeavour a *lab* established the scientific nature of exploration through embracing the process rather than the outcome. As a research and design lab with a mission to understand material ethics and responsibilities from the land and places on which we work, live, and play, the lab welcomes a culture of engaging with people through research, provoking imagination, and diversifying perspectives on material practices in ways that support our local communities.

The collaborative approach of this work allows us to work with students, faculty, and external co-creators with the collective goal to create a meshwork of place-based material experiences. Through this work, we hope to build a foundation to share and offer knowledge and open up the conversation on place-based and responsible material practices. We see this work as a means of embedding reciprocity between designers and place.

↳ [Figure 20] shows fish leather softening.

↳ [Figure 21] shows finished fish leather pieces.

↳ [Figure 22] shows Industrial Design student Paula holding up her Blackberry bio-textile. The blackberry powder was contributed by pl.lab. The lab has worked on a number of different endeavours so far - from working with fish skin to blackberry and finally expanding more in detail on research potential uses of the invasive plant species “Scotch Broom.”

↳ [Figure 23] shows managed and unmanaged land at Iona Beach Park. Here, we organized a collective Scotch broom removal event in March 2022

"We abuse land because we regard it as a *commodity* belonging to us. When we see land as *community* to which we belong, we may begin to use it with love and respect. "

- Aldo Leopold; A Sand County Almanac

→ Investigation 2 - Ecological Restoration through Material Practice

Exploring Invasive Species as Resource

Through our work within pl.lab, we have been exploring invasive species as potential resources of our bioregion. We have engaged with scientists[21], material designers[22], students[23], local community members[24] and researchers[25], establishing relationships founded on material and place. As a means to share our explorations, Christa and I have co-authored a paper included in the appendix. In this work, we state:

[21] Samuel Hahn and Yeedo Chun from the BioProduct Institute at University of British Columbia

[22] Marni Bowman, Furniture and Material Designer based in Vancouver, BC, whose work evolves around repurposing oyster shell from Fanny Bay

[23] Through engaging with students from the Arts and Design departments at ECU, Christa and myself have been part of setting up an exhibition in June with its title being "Roots of Place" and showcasing place-based material practices on campus

[24] Such as EartHand Gleaners Society, and Natural Resource Management Technician Sam Cousins at Iona Beach Park

[25] Invasive Species Research Conference 2021

> “Restoration and (ecological) design not only share intentionality as its driving force, community engagement as its fuel and mutual values and responsibilities as its navigation, it also shares the idea that conversation is the key to reciprocity and agency. Historical and cultural conditions of an ecosystem and place need to be considered authentically in order to act in service of Earth’s greater good. “Restoration is about restorying place” (Higgs, 2003, p.285) and for this, stories - as of the past, present and future - need to be told and successfully received to work towards a more harmonious and resilient future on Earth.“ (Clay & Schmitt, 2022, Appendix A)

To investigate the potential in the pursuit of ecological restoration as a practice within design, pl. lab’s main endeavour was researching invasive species, specifically Scotch broom, as a bioregional resource through material exploration. Scotch Broom is considered one of the most invasive plant species in British Columbia and is pervasively removed and destroyed to prevent the uprooted plants from reseeding. Intending to prototype its usefulness as a resource, we approached Scotch broom by trialling it out with the tools and methods at our disposal.

We were introduced to its traditional use and processing in Southern Italy by looking into the plant’s history and reaching out to local community members. Before the industrialization of textiles made the processing of cellulose-based folk fibres nearly obsolete, coarse fabric was woven from the fibres of Ginestra (broom). Inspired and reinforced by this bygone practice, pl.lab’s investigations on material properties of Scotch broom have started by replicating this ancient process.

↳ [Figure 24] shows Scotch broom bundles prepared for further boiling in soda ash to break down the fibre.

↳ [Figure 25] shows fibre processing at CRAB Park in Vancouver, BC. The Italian processing technique suggested placing the pre-boiled and soaked plant on the ground, covering it with sand and "dancing" on the matter to separate core fibre and chlorophyll.

By translating the Italian instructions on my own and successfully mistranslating parts of it, the replication took its own turn but left us with an impression and promising outcome of what potentially become a fibre source.

Examining its various components led us to explore other traditional crafts such as paper-making techniques and incorporating the brook stalk and fibre into locally sourced composites. Inspired by mud-bricks and hempcrete[26], we developed a concrete-like material composed of broom fibre and lime (CCaO3). With the principle to research our bioregion's (various) untapped material resources, the lime we used is derived from oyster shells as a local version of calcium-carbonate.

Each investigation has brought to light properties of Scotch broom that reinforce our initial hypothesis of its potential to become a useful resource while exemplifying a rare opportunity to establish a local material resource that it would be advantageous to run out of. As Scotch broom has been brought to British Columbia from Scotland in the mid-19th century, wandering around to find its unique use while symbolizing an alternate beauty in the old English Empire and an alternate home in the New World. What if the role of Scotch Broom is to spark the act of rethinking, re- and unlearning knowledge and open up the conversation on alternatives in today's society? What happens if we really intend to "restory" a place? When new, yet presumably local materials are introduced to communities and need to be managed? How can we honour a place through material practice, and how can we create meaning through these place-specific materials?

[26] Hempcrete is a biocomposite material, a mixture of hemp hurds and lime, which is used for construction and insulation

↳ [Figure 26] shows spun Scotch broom fibre. Mistranslating one step from the Italian source led to extracting the "wrong" fibre but led to further exploration.

↳ [Figure 27] shows brick making process by filling the tile press with the previously prepared paste of water, ground and burnt oyster shell and freshly blended Scotch broom leaves.

↳ [Figure 28] shows tile press and finished brick, which will dry for up to a week before being fully cured.

↳ [Figure 29]

As a demonstration of speaking a new vernacular of a place, Scotch broom is an excellent example of how place-based narratives need to consider geography, people, and time and how meaning can be created through material. A material that comes to this place with a story on its own, here Scotch broom as an appreciated plant in Scotland and traditional fibre resource in Italy, will be confronted with an existing narrative that has resided here for centuries which shaped the way the local culture approaches, manages and engages with plants. This learned knowledge will ultimately shape how a new plant, in this case, Scotch broom, is welcomed and treated. Aiming to merge and use these tensions as a means of communication is to create a very own, converging language - a material vernacular of British Columbia.

On Material Vernacular

Understanding the cultural significance of materiality that surrounds us allows us to welcome new knowledge around the foreign matter, learn the traditions and protocols of harvesting and use and lastly allows us to emphasize voices or create new stories. Speaking a vernacular means engaging with language that is rooted in its locale. But speaking *material* vernacular, on the other hand, means engaging with materiality that evolves from a place and merges traditional, ethical and cultural attributes while envisioning new practices to collaborate and co-create and express meaning *through* material.

Scotch broom, seen as a specific form of vernacular within this research, happens to be of Scottish descent. Revived in its new home in British Columbia, it carries nuances of its origin while appropriating a local accent.

[Figure 30] shows shadows of "dancing on Scotch broom" - the Italian tradition brought to Canada

A Design Tool?

Can Material Language act as a design tool to help creatives understand the *multilayered* dimension of the material they engage with or design for? Accessing the phenomena around material as a fulsome language invited me to understand the matter our world is built of in a dialogic way. Becoming sensitized to the non-verbal responses inspires to become fluent and literate in *Material* as language practitioners.

My explorations with unconventional materials have shown me how understanding a material happens in various forms and can be approached dynamically. From learning about their origin, history, and folklore to identifying materials' properties and characteristics, I was ultimately able to map the landscape of the material and understand its roots, connections, and abilities. The engagement with plant species within my creative practice has given me the opportunity to broaden my knowledge of their material ethics. Meanwhile, the encounter with traditional uses and applications has expanded my awareness of materials' inherent cultural integrity.

Applying Material Language allows us to *examine the tiniest particles* of material surrounding us the same way we examine words by understanding technical characteristics of material, such as strength, durability, sensitivity and more. It encourages us to *reveal the intangible properties* of material we engage with, just like we reveal semiotics in language through experience and reflection. Further, material language as a design tool enables us to *re-assemble the composition of meaning and context* equal to restructuring sentences, rearranging paragraphs and writing new narratives.

Overall, 'Material language' manifests the tangible and intangible dimensions of new material engagements and to me, presents itself as *a tool within design* that mediates how language relates to materiality.

In retrospect, I leveraged this “design tool” to explore materials and the implicit and explicit meanings embedded within, akin to the foundational skills found in learning a language: *learning, writing, reading, speaking* and *listening*. As identifying elements of this design tool, I will draw on’ Material Literacy’ and ‘Material Fluency.’ These terms derive from learning a foreign language, where literacy describes the ability to read, speak, listen, and *understand* the new language efficiently. On the other hand, fluency defines the ability to *create* something in the language, such as a story or practicing conversation. Here, *Material Literacy* will reflect the understanding of how to apply the tool, whereas *Material Fluency* the ability to create with the design tool.

→ Definition:
material vs. Material

While the capitalized term refers to the proposed language *Material*, the lowercase version of the same word describes the concept of matter, the plurality of materials of all forms, states of aggregation, conventional and unconventional - the concept of *material* as a whole.

Literacy

Literacy describes the ability to read, speak, listen, and *understand* a new language efficiently.

→

Fluency

Fluency describes the ability to *create* something in a language, such as a story, discussion or conversation.

→

Material *Literacy*

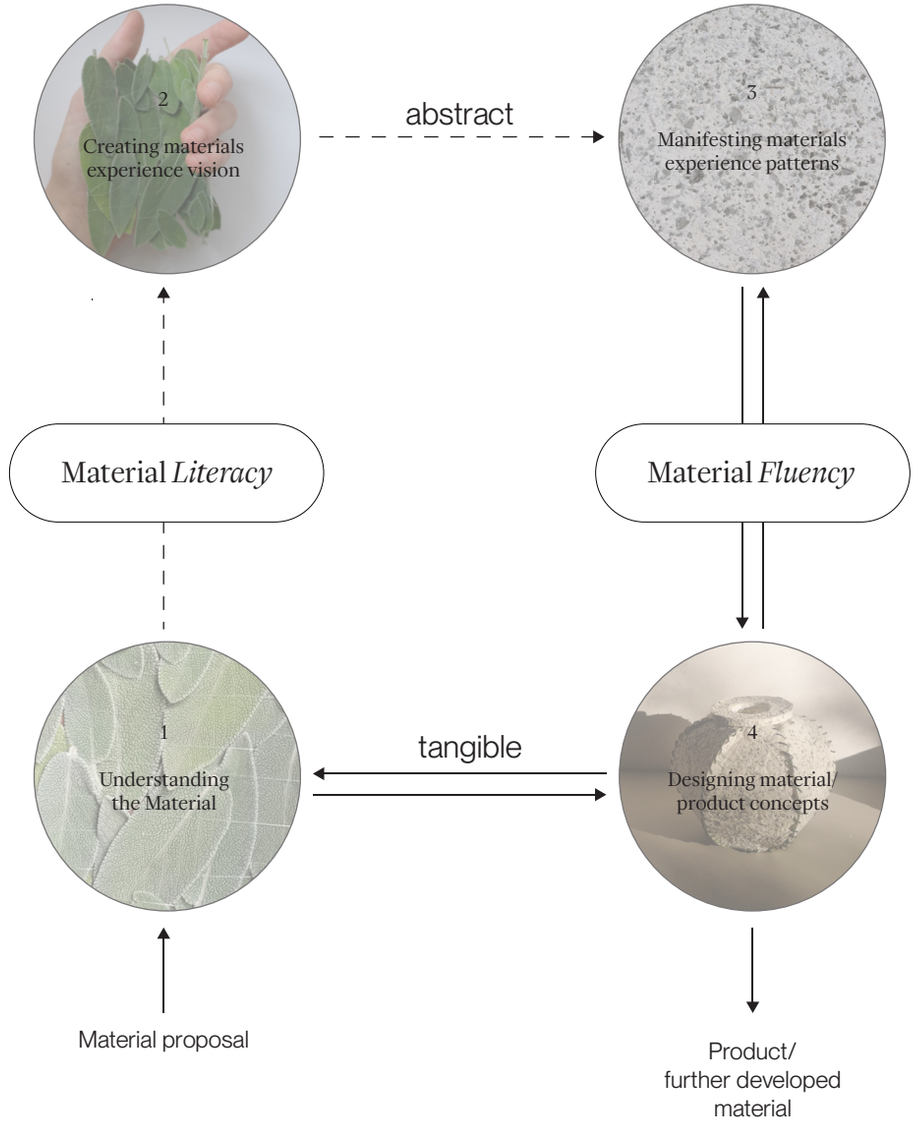
Materil Literacy displays the capacity to *decipher code of material*. The concept of material literacy offers methods such as evaluating semiotics of material, analyzing its social, political, historical, or biographical context, employing formal and narrative analysis to understand the context and encountering familiar structures of learning a language, transferred to the alien context of material worlds.

Material *Fluency*

Material Fluency showcases the competence to process and articulate content that has not been able to be spoken of or not existed before. The concept of material fluency aims to provide ways to create meaning with material. In the same ways that humans absorb language to communicate, socialize and evolve, this part of the design tool offers methods to interact with materials on a universal yet place-based level.

MDD + Material Language

[Figure 31] shows a modified version of the previously described Material-Driven Design Method (p.31).
Evaluating my material explorations, I could see the four main steps to 1) understand the material, 2) create materials experience vision, 3) manifest materials experience patterns and 4) design material product concepts clearly within my practice. From tangible to abstract and back, the trajectory would each time stay unique but the pattern of exploration would remain the same to me. In retrospect, I see the extension of this method with Material Language. Hereby would Material Literacy describe the first path from tangible to abstract, and Material Fluency as the second path of abstract to tangible.



[Figure 31] Modified Material Driven Design Method

Material Discourse

Discourse can be seen as an act of shaping grammar: frequent patterns of use can result in grammatical changes and the development of new functionalities within the language. Within this research, it describes the ability to establish an ongoing conversation on shaping the concept of 'material language.'

This work has been led through practice, informed by place and motivated by seeking to know how I can make sense of the inherent meaning of material with which I engage every day. Like a conversation, this work benefitted from a constant back and forth between reflecting on and working with materiality in its various forms. The process of creating material, such as manipulating textures and shapes through crushing, pounding, combing, binding and more, would raise the awareness of what it is that I was engaging with - imagination. Plants or shells, appreciated or disregarded, familiar or unfamiliar - I ultimately engaged with a cluster of particles that would together form a distinct imaginative experience.

> "Re-imagining is necessary, and when done collectively is lovable. To re-imagine we need a new language. The old one is not enough and is maybe the reason why we cannot yet re-imagine. Our imagination is in a moment of crisis, or maybe just in between." (Pomarico, 2017, p.217)

The previous explorations of "material peotry" and "material vernacular" have showcased how engagement with materials can be perceived as forms of everyday communication. It demonstrates how personal and concealed ways of *writing meaning into material and design* (i.e. Material Poetry) can inform how we think about artifacts and objects. It pictures an exploration that transcends the predominant design practice as it does not answer presentational questions such as how to engage with it, utilize it, or its function, as these answers remain personal. Instead of designing for inclusivity through universalizing, it means designing for inclusivity through individualizing. Everyone can find personal meaning within and encounter the object on their own terms.

These explorations also demonstrate how direct and raw engagement with the natural systems and community can offer ways to *tell place-based narratives* (pl.lab). Illustrating the breadth of possibilities when engaging with a contradictory plant species goes beyond the realm of material science and development but starts by asking questions on ecological and cultural integrity in the very first step. Hereby, it is the designer's responsibility to act in the service of sustainability and society through local approaches to acknowledge cultural significance. Collaboration within the field needs to push boundaries in its constantly changing discipline.

The motivation towards acquiring literacy of the inarticulable - the abstract dimension of material's communication - is ultimately to provide a method of reimagining our future on Earth.

The word *material* speaks of history, people, place, community, and resilience, evoking a sense of belonging and care. However, once we examine material through the lens of sustainability and decolonization, it opens up a conversation on what it means to engage with the most tangible form of human culture.

Language can be diverse. As a container of meaning, a system of thought, and a tool for communication and imagination, it can be spoken, written, read[27] or listened to. It unfurls narratives of memories, emotions, and rootedness entangled with material.

The use of both terms in the title of this thesis and as the name for the proposed design tool is intended not only to share the intersections between *material* and *language* but inspire intention, reflection, and action on what it could mean to acquire material language.

[27] Including the option of feeling language through reading braille.

This work is not meant to only live within a master's thesis. Instead, it aims to nurture the conversation on our future by building a common ground for communication. This common ground is what I see in perceiving material as a similar system to language. A system that we are trained to acquire literacy of. A system that would create an interesting tension when brought into other fields of academia and industry.

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... or who I owe a debt of *gratitude*

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Appendix A

Co-authored paper by Christa Clay and myself, accepted as contribution to the first issue of Occasional Papers through the Occasional Press, a publishing imprint that showcases creative research from across Emily Carr University of Art and Design.

Ecological Restoration through *Material Practice*

Invasive Species as Resource

abstract →

This paper offers a perspective on design's potential to act in service of ecological restoration. By investigating an invasive plant species as an untapped material resource of our bioregion, this work illustrates an example of how place-based material practice can benefit both our communities and landscapes.

The practice of sourcing materials from overseas rather than making better use of what we have available locally paired with the introduction of materials that are ecologically foreign in our respective latitudes, acts in disservice of a greater environmental symbiosis. Under these circumstances, we have become blind to the capacity of unconventional resources housed in our respective environments. This paper unpacks how reconnecting with local materials in design and making practice can nurture our relationships to place, community, and sustainability.

Through explorations into material properties and opportunities of Scotch broom *(Cytisus scoparius (L.)),* one of the most prolific invasive plant species in British Columbia, this work offers an alternative to the current culture of resource extraction and globalization of materials. The investigation demonstrates the temporality of our resources and their implicit ethics by proposing a material that would be advantageous to exploit, refine and deplete. This offering presents itself alongside an increase in calls towards localizing our footprints, reconnecting with our living environments, and decolonization. In order to effectively investigate the breadth of its potential, this work incorporates reflections on ecological restoration as well as material engagements.

Appendix A

acknowledgement →

The contents and context of the following document were conceived, collected, and co-authored on the unceded ancestral territories of the Sḵwx̱wú7mesh (Squamish), Stó:lō (Stolo), Səl̓ilwətaʔ/Selilwitulh (Tsleil-Waututh) and xʷməθkʷəy̓əm (Musqueam) Nations. This work was conducted primarily by Chiara Schmitt, originally from Germany, and Christa Clay, originally from the United States. As a place-based inquiry, translatable across borders, it considers not only this particular geography—but also the pattern of our human relationships to the landscapes around the world that have impacted us—each context carrying with it a unique set of histories, language, cultural traditions, and responsibilities.

foreword →

This writing acts in service of ecological restoration through design and explicates an example of how material practice can support our communities to foster more resilient and sustainable futures. The desire to reimagine our relationships to materials and place as makers and designers instigated the founding of *pl.lab*, the place-based material lab, by the co-authors of this paper. Calling the collective endeavour a *lab* established the scientific nature of exploration through process rather than working alongside certainty towards the outcome, which contrasts habitual design practices (Strauss, 2017, p.15-16). This framework embraces a culture of engaging with people through research, provoking imagination, and diversifying perspectives on material practices in ways that support our local communities. This work serves as a culmination of the process of positioning ourselves here, grappling with our local responsibilities, and the opportunities that emerged from this way of working.

> "The modern dilemma is that we find ourselves trapped between the growing cleverness of our science and technology and our seeming incapacity to act wisely." (Orr, 2004, p.29)

As designers, our actions have influence and the decisions we make have consequences—the language we use, the energy we pour into community and equity, the materials we choose. Inevitably, we design conditions.

Through studio and material practice, we prioritized this *opportunity* and *responsibility* to design conditions before we knew what would come of it. The outcomes have been fruitful, educational, and challenging. Investigating the question of how to honour our relations to place through a material practice that would be considerate of cultural and ecological integrity, as discussed in part one of this paper, led *pl.lab* to the exploration of invasive species as a resource, showcased with our personal practice in part two.

Scotch broom, one of B.C.'s most prolific and invasive plant species, is presented here as an untapped material resource of our bioregion.
In light of a changing climate—socially, politically, ecologically—this research offers a way of working well suited to flexibility. As a design research tool and a methodology for making in a changing world, the prioritization of responsibility and opportunity cannot be understated. It is the only reason this research continues within the scope of this lab—and that it acts in service of the environment in which it is inextricably linked.

part I →

Restoration, by definition, describes the action of returning something to a former owner, place, or condition through holding the intention to re-establish, renew, and revive[1]. While *restoration* pursuits to recover conditions of the past, *design practice* has the ability to envision, mediate and initiate alternate conditions that allow for new realities to happen (Strauss, 2017, p. 26). Those realities ought to think into the future but connect it to the past.

[1]Definition by Oxford Languages

Creating this bridge that reconciles the unpredictable future with the imperishable marks of our ancestors on Earth requires not only science and technology but also diverse embodied knowledge. It asks for a collaborative practice that works toward a common goal, joins forces, and advocates a shared ecological ethic that puts the planet and its healing at its centre. This eco-centric worldview allows for *ecological* integrity and an ethic that respects life on Earth (Fleming et al., 2016, Chapter 16) restores its diversity while preserving and nourishing human values and culture instead of advancing their destruction. It asks for appropriate action, a shift in our predominant relation to the natural systems and decolonization of our imagination[2].

[2]Stands as a counter-theme and in reference to the article „Colonizing the imagination: Disney's wilderness lodge" in which the authors Eric Higgs and Jennifer Cypher discuss the manipulation of our perception of *nature* and *wilderness* through corporations. As a stand-point we here call for a reimagination and disentanglement of these colonial images. Cypher J., Higgs E. 1997.

Using the two terms restoration and design and further proposing that one can benefit the other is based on the belief that cross-disciplinary assets seem worthwhile to investigate. What starts with the cautious intention of restoring ecosystems and "regenerating old and new ways to bring us closer to natural processes" is understood as "the power and promise of ecological restoration."(Higgs, 2003, p.2) On the other hand, this *intentionality* is what leads the discipline of design as well. Whether designing for humans, more-than-humans, or together for the earth and its needs, designers need to be intentional about how to approach those problems to make sure they ultimately act with accountability to their true values.

Intention, no matter how focused, will not stand alone as a driving force against ecological and cultural problems of the world. Assisting a recovery of an ecosystem or establishing a behavioural shift are long-term endeavours that require perseverance. Though what unites both practices—restoration and design—is the fundamental understanding that initiation will not result in actual implementation unless the *community* is involved. "Rather than burying human agency behind a wall of ecological justifications, design acknowledges that restoration is also and always about people working with and within natural process." (Higgs, 2003, p.14) Looking at restoration as a design practice opens up the opportunity of action that goes beyond the discipline itself and asks for collaboration and community engagement on a larger and more impactful scale, believing that the ecological community will eventually form the ethical community (Sylvan et al., 1994, p.91).

Anne Whiston Spirn wrote, "The moment people come to a place, even as reverent observers, they alter what they came to experience."(Spirn, 1995, p.94) The Earth is constantly changing. We experience day and night, summer and winter, notice calm and storm, fire and flood, witness tides and shifting tectonic plates, and the increasingly irrefutable effects of climate change. As our choices will have consequences after our death, beyond our foresight, in places that we have never been to and for species that we don't know (Fleming et al., 2016, Chapter 16). It is up to us, as global citizens, to ensure these choices are in line with our *values* and our *responsibilities* not

only for our own sake, but for the sake of future generations.

Restoration and (ecological) design not only share intentionality as its driving force, community engagement as its fuel and mutual values and responsibilities as its navigation, it also shares the idea that conversation is the key to reciprocity and agency. Historical and cultural conditions of an ecosystem and place need to be considered authentically in order to act in service of Earth's greater good. "Restoration is about *restorying* place" (Higgs, 2003, p.285) and for this, stories—as of the past, present and future—need to be told and successfully received to work towards a more harmonious and resilient future on Earth.

Bridging the two disciplines, ecological restoration and design, allows the imagination of one within the other while maintaining their respective proficiencies. This cross-disciplinary approach offers the opportunity, which Eric Higgs describes as follows: "Ecological restoration as a design discipline demands attention to tradition and novelty at the same time, searching creatively across the spectrum of the arts and sciences for the best way to respect ecological and cultural integrity."(Higgs, 2003, p.279)

By respecting *cultural* and ecological integrity through the act of restoring something long-term, it is crucial to learn about the memory and history of a place to identify which conditions we want and should restore it to. While it seems as though the ultimate goal of restoration might be to redeem the mistakes of our past, it can be unsettling when one ponders the question of when exactly those mistakes began. Did they start with industrialization, colonialism, or humanity at large? If this were a way to travel back in time, where would we want to go in the landscape's chronology?

Tendencies to 'fix nature' or 'save the earth' can be precarious as it continues to portray humanity as superior once again. This misinterpretation squanders the actual intent to *assist* the planet's recovery rather than execute it on man's own terms. It is these tendencies that turn the mission of ecological restoration into something recalling coloniality—something that involves command, control and curation, revives the question of land ownership, and manifests a worldview in which men and nature are not interdependent, but separate from each other. These concerns were explicitly brought up in an ethnographic study of Anishinaabe perspectives on invasive species (Reo et al., 2018). With a worldview that sees animals and plants as belonging to nations and having their own purposes, their teachings believe that it is the human responsibility to find the reason for a species' migration, its purpose in a new place and the care it requires to thrive. As native and new species are seen as equal and one or the other eventually can become invaders, such a perspective diminishes the idea of elimination. Designers-as-restorationists risk acting from an assumption that invasive species are inherently bad if they do not consider the perspective of local land stewards. In light of ubiquitous and precarious human interventions into our environment through forestry or mining, planning the eradication of a species, even outside its 'native' boundary, raises the ethical question of interfering further in ecosystems.

Though this time, it would claim to be cautious and with good ambition. Ecological restoration follows certain nationwide guidelines[3] to rehabilitate damaged ecosystems, such as those struggling with soil erosion due to a lack of vegetation, those that lie fallow because of missing nutrients or too much or little sun exposure, or those that invasive species have invaded. The latter is the case this research aims to probe its service for. As place-specific requirements shift, these guidelines need to follow the vernacular of a given place. Therefore, "if we actively want to engage with people in local situations in which they do take ownership or create a different sense of belonging, then we have to understand that the outcome may be different than the one we had in mind."(Strauss, 2017, p.52) An ongoing mediation between a community and the particular ecology of a place feeds the nourishment of a "community self-reliance" (Fletcher et al., 2019, p.49) that embraces the uniqueness, cultural integrity, ecological responsibilities and emotional heritage inherent in localism.

The ecological consequences of globalization, such as resource scarcity, extractivism (Parks, 2021) exploitation, and climate change, raises the question of how much we value our planet. As a response, implementing the idea of "restorying" a place offers a new understanding and appreciation of locality. This methodology identifies the possibilities and offers of our immediate bioregion to meet the significant need for carbon-neutral or negative materials and sustainable living through the cultivation of new engagements with materiality.

We propose a restoration-driven material practice that acts as a means to actively immerse participants in the ethical discussion of human interference in ecosystems and offer proximity as an opportune context from which to start.

[3]Ecological restoration in BC works according to three guiding principles: to be effective, efficient and engaging in order to achieve successful, inclusive and habitual results. Every region sets standards.

part II →

Our research with the invasive plant species *Scotch broom* is a prototype of a material practice in design that contributes to ecological restoration. This collaboration aims to invite other practitioners to explore further opportunities beyond this specific cross-disciplinary venture. While consciously operating in between practical and theoretical applications, this research-creation seeks to serve as a model for alternative material practice. "In the art of inquiry, the conduct of thought goes along with, and continually answers to, the fluxes and flows of the materials with which we work" (Ingold, 2013, p.6)

Strauss' *slow encounter* coupled with Ingold's *act of inquiry* support an intentionally decelerated process within a design paradigm. It is from this methodology, paired with our commitment to locality and community, that this research emerged. In order to imagine a material-based practice that is environmentally, socially, economically, and culturally considerate, this work took its time. Implementing slower, open-ended ways of working that leave room for dead-ends and redirection is what allowed the progression of the collaboration to ebb and flow to where it is today. In this patient approach, we began by learning the histories of the landscape, along with identification and research of the material in its raw, organic form, followed by understanding the implications of its expanding presence to identify and prototype potential opportunities for it after its removal. In practice, the emphasis was not confined to any specific outcome, but rather that the process be saturated with a comprehensive contextual awareness in order to establish a new system for material ethics and responsibility within design practice.

The removal of Scotch broom acts not only in the service of our natural environments, but additionally as a physical expression of decolonization. The action of removal, a tool of ecological restoration, coupled with the utilization of this untapped material resource, offers a unique and provocative inquiry. Scotch broom is an opportunistic invasive plant species found throughout the coastal areas of the Pacific Northwest of North America. It is prolific both in its physical presence, particularly when in bright yellow spring bloom, but also as an area of concern amongst ecologists. Broom is an early colonizer, a designation appropriate both for its ecological function and cultural history of introduction and propagation due to its capacity to infiltrate recently cleared and disturbed sites. Mature plants as young as five years old can produce eighteen thousand to 31,500 hundred seeds annually (Lee, 2010, p.50). Once established, broom colonies are adept at displacing native plant species, altering soil chemistry, as well as causing fire hazards in an increasingly unpredictable climate (Caldwell, 2006, p.1). Scotch broom is on record to have been brought to British Columbia, where this research resides, in the mid-19th century. Though its precise carrier and intention is still debated, it was, and still is to many, well known as a beloved ornamental plant by Scottish colonists as it was a reminder of their home landscapes of Great Britain (Lee, 2010, p.47). For others, it is an example of so-called "ecological imperialism"[4].

As this paper is written, Scotch broom is considered one of the most invasive plant species in British Columbia and is pervasively removed and destroyed en masse to prevent the uprooted plants from reseeding. The plants are so established in this climate that few consider eradication a possibility, not unlike the case with Himalayan Blackberry[5], and instead focus on management of the spread. As broom diminishes biodiversity in our local ecosystems and is easily identifiable all over British Columbia, it draws the attention of a range of concerned parties. From casual naturalists to organizations committed to ecological and habitat restoration, it is an easy target—and an even easier enemy to rally behind. Nevertheless, we must carefully consider broom's potential gifts and engage our mutual responsibility as Anishnaabe land stewards understand it (Reo et al., 2018). As the negative impact of Scotch broom on this landscape is widely accepted amongst local ecological restorationists, investing time into researching its properties and application is valuable and necessary work.

We approached Scotch broom with the intention of prototyping its usefulness as a resource, which meant trialling it out with the tools and methods at our disposal. With little to no literature confirming contemporary use of broom as a material resource, we started the research by looking into the plant's history and reaching out to local community members[6]. This is how we came to find research introducing us to its traditional use and processing in Southern Italy. Before the industrialization of textiles made the processing of cellulose-based folk fibres nearly obsolete, coarse fabric was woven from the fibres of *Ginestra* (broom). Inspired and reinforced by this bygone practice, pl.lab's investigations on material properties of Scotch broom have primarily been focused on leveraging its high fibre content and expanding its applications. Our first experience of harvesting and processing broom was replicating this traditional process. The raw material was sorted, bundled, boiled in soda ash, soaked, crushed, resorted, carded, spun, finally resulting in a short yet confirming bit of rope.

Engaging with the plant in this first exploration familiarized us with its potential practical applications. Our next step was to apply another traditional craft, cedar-paper making, to Scotch broom by stripping, processing and pounding the bark and primary fibre stalk. The lab's most recent endeavour is developing a concrete-like material composed of broom fibre and calcium carbonate (CCaO3)[8]. This mineral is primarily known as lime, commercially derived from limestone, while it is also accessible in seashells. With the principle to research our bioregion's (various) untapped material resources, this composite material was successfully trialled with locally foraged oyster shells.

Each investigation has brought to light properties of Scotch broom that reinforce our initial hypothesis of its potential to become a resource of considerable usefulness should it be integrated into our resource economy. Furthermore, it has exemplified a rare opportunity to establish a local material resource that it would be advantageous to run out of.

[4]Alfred Crosby coined the term ecological imperialism as means to describe the way European settlers have successfully colonized other regions by purposely and incidentally introducing animals, plants and diseases which led to dreadful shifts in ecology and to population collapses in the endemic peoples.

[5]"Himalayan blackberry was first introduced to BC as a berry crop. This plant can grow almost anywhere. It spreads by seed (from birds and people spreading berries) and by rooting from stems that touch the ground. As a result, it is one of the most widespread invasive plants in Metro Vancouver."

[6]Sharon Kallis of the EarthHand Gleaners Society

[7]Harvested from underneath the south end of the Burrard Bridge in Vancouver, BC.

[8]Opportunities to responsibly source oyster shells for CCaO3 have been illuminated through conversations with Marnie Bowman, a material designer from Fanny Bay on Vancouver Island, BC. Her access to shells as a byproduct of the region's extensive oyster farming operations has brought to light the massive amount of shells cast aside, accumulating more each season.

conclusion →

Moving into the future, where the only constant will continue to be change, adaptable material practices must be in place. Creative solutions to unimaginable quandaries will mould our futures as sustainable practices continue in popularity among progressive design and art institutions, studios, and enterprises. Bio-material designers are making headlines with increasingly inspiring and innovative projects. Still, the answers to scalability of these conceptual presentations are not yet exhaustive enough to stand up to the market as alternative solutions to conventional materials.

Through the logistical challenges of working in an area of research with little precedent research to build off of, we have practiced what we sought to do. In practice, developing a material or processing method for an invasive plant species as a means of exhausting it from our ecosystem is flawed as a business model. If we were to run out of broom by 'creating a material that we want to exploit, refine and deplete', our poignant, evocative tagline, then what would we do?

We move on. We must. This proposed circumstance is not unlike what we are experiencing now as a global community. The rapid depletion of finite resources will force us into these quandaries as we continue to use them faster than we can replenish. With this in mind, we stress the value of working slowly, and from the ground up—always keeping the implications of our designs, especially regarding material choice, as the first step.

This all comes back to the notion that this work is not about developing a marketable material, something that we can easily source, process, produce, and profit from, but instead opening up the potentials of this widely available material to the public. Transcending from the commercialized practice of design to focus on product development, as this venture lives through process. While reflecting on the ethical conflict to allow interfering into ecological systems again, we stand by the goal to run out of Scotch broom. As climate change proceeds, this plant species will thrive more than before and, without further management, remain increasingly abundant, absolutely free, and of service to the community to remove. As the lab continues this research along with other ongoing collaborative projects, it will continue to start where this one did—slowly—and with fellow community members right there at the table alongside it.

afterword →

This way of working was central to Jean Chisholm and Laura Kozak's work regarding *Place-Based Responsibility* at Emily Carr University of Art & Design. It was this foundation that supported the research within the place-based material lab, short *pl.lab*, and provided invaluable cultural framing and context. The cohort that adapted to this ideology, the Place-Based Grad Collective, sought to prioritize place and land as primary stakeholders in research through design practice. It presumed an opportunity and responsibility that we have as influencers of culture, habits, and the future. The work within pl.lab was continued and supported by the 2021 Satellite Residency through the Shumka Centre for Entrepreneurship furthering the lab's network and visibility to the public.

In practice, this work would have been impossible without interdisciplinarity as a founding principle. These investigations included outreach to the Invasive Species Council of British Columbia (ISCBC), meeting with the BioProducts Institute at the University of British Columbia (BPI), and material designer Marni Bowman, to name a few. This work can only influence the regional resource and material culture if it incorporates as many sectors as it affects and is widely available for the community to locate and access. As the research and development of this investigation continues, we get closer to developing reliable methods and instructions suitable for open-source distribution.

Appendix A

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appendix →

Chiara Schmitt:
Chiara is a product designer, maker and design researcher focussing on material-driven explorations in craft and design. Through her work, she explores areas of sustainability by dealing with natural materials and resources in the field of material speculations. With a strong interest lying in their perception and sensation, her practice touches on the agency of social responsibility and sustainable behavior. Having completed her BA at the University of Applied Sciences Schwäbisch Gmünd in Germany, Chiara is now pursuing an MDes at Emily Carr University of Art and Design.

Christa Clay
Christa Clay is a maker, designer, and researcher based out of Vancouver, BC, where she is currently pursuing a Masters in Design at Emily Carr University. Her practice is place-based, incorporating local material research as well as ethics and protocols around material harvest and process. The center of her research focuses on how material agency can strengthen our capacity to support circular economic models in urban communities. During her studies, Christa has worked as a farmer and gardener when she is not honing her woodworking and ceramics practice. She is originally from Austin, Texas, but has lived in B.C since 2018.

pl.lab
The place-based material lab, short pl.lab, is a research and design lab with a mission to understand material ethics and responsibility from the land and places on which we work, live, and play. The collaborative approach of this project allows us to work with students, faculty, and external co-creators with the collective goal to create a meshwork of data through resources, experiences, contacts and protocols. Through this work we hope to build a foundation from which to share and offer knowledge and open up conversation on place-based and responsible material practices.
www.pllab.ca/