The Curatorial Anthropocene: An Analysis of Canadian Museums' Engagement with the Climate Crisis

Exploring Perspectives on Precedent and Barriers

By

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Abstract

Museums hold the power to influence and educate the public on accessible levels, using multimedia displays and bite-sized pieces of information for digestible intake of scientific understanding and innovation. The intergenerational, and more accessible manner of museums holds the ability to educate larger sects of the public, outside of academic and professional settings, in where understanding of the world, and fun are intertwined. Education through museum displays and exhibits is a voluntary, willing act of participation, from which individuals of all backgrounds and ages are able to learn, with museum structures considered to be trusted, sound institutions. In an evolving social climate, the Canadian museums sector must look to the unique power it holds, as pedagogical institutions of knowledge, to expand beyond traditionalist methodology, and engage with education, community, advocacy, and the climate crisis. This study thematically analyses the perspectives of Canadian professionals in the field, looking at what *has* happened, what *is* happening, what *ought* to happen, and what *barriers* stand in the way. In comparison with existing, global literature, we see the Canadian museum sector to be placed in an in-between, in where appropriate dismantling of barriers may alleviate stressors, creating the momentum for urgency with climate to be integrated on a widespread scale, through standardization of institutional frameworks, along with paradigmatic shifts within the sector.

Key Words: Climate Curation, Community Engagement, Decolonization in Museums, Museums and Climate, Museum Professionals, Sustainable Education, Sustainable Institutions

Positionality and Disclaimer

In this thesis, I, Lenka Tomlinson, approach the research from the multi-disciplinary background of Environment, Society, and Sustainability. I acknowledge my position as a white settler of European decent, studying and researching on the ancestral and unceded lands of Mi'kma'ki. I recognize the biases stemmed from my lived experiences, as well as the nature of my research, and through reflexivity and transparency, I aim to navigate these biases based upon existing literature, in contributing to a nuanced understanding of the state of Canadian museums as a part of the climate crisis – in engagement and effect.

Please note that while it is necessary to apply an intersectional lens to my work, it is not within the scope of my research to expand fully upon decolonization practices in museums and within sustainability, as I will not be able to cover this topic justly and equitably within the confines of this research project and paper.

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Chapter 1: Introduction

Museum-type institutions hold a pedagogical power as structures of knowledge, respected and attended by members of communities outside of academic spheres (Cameron et al., 2012). Education in a formal sense is highlighted to the general public, limited only by the accessibility of these institutions (Cameron et al., 2017). It is because of this presence and thus power – derived of unique setting – that they hold a responsibility to the public to update the information held to represent the paradigmatic shifts and changes in the world. Through active processes of internal adaptation, educational updating, and practices of decolonization, museums may start to uphold this responsibility to their local and national communities (Janes, 2022). In a major consideration of this process, the inclusion of sustainability-centered, climate education and awareness ought to hold a presence within museums. Across the world there have been movements towards this necessary inclusion of topic in programming and exhibits, as well as internal sustainability initiatives, yet Canada still has widespread progression to catch up upon. This study will examine professional perspectives of the *precedent* – what has been done - within the Canadian museum sector as an overarching "environmental scan", moving onto a discussion on how museums *should* be engaging with climate programming and adaptations, facilitating their role in a societal transition towards a more sustainable society – and what *barriers* exist for museums professionals and institutions to enact this transition.

The need for climate change education is founded in the urgency of the present state of the world. The Earth has entered a time of significant existential crisis. Humanity faces the "Age of the Anthropocene" and its effects as we journey further into the 21st century. Human activity and unsustainable energy use has created a situation of unequivocal, potentially irreversible warming of the Earth, environmental habitat loss, and detrimental pollution (IPCC AR6, 2023). The emittance of greenhouse gases from global industrialization has resulted in global warming as these compounds enter the atmosphere at unprecedented rates in Earth's history (IPCC AR6, 2023). Global warming due to energy consumption, land use change, lifestyles and material consumption and production has risen 1.1°C from [1850-1900] to [2011-2020] (IPCC AR6, 2023). Changes across the atmosphere, ocean, cryosphere, and biosphere have occurred due to human alteration and impact on Earth's lands and waters. These changes are resulting in adverse impacts of devastation. The increase in intensity and frequency of natural disasters, loss of

reliable water sources, lost resilience of agricultural lands, and related impacts to the damages of nature and people are with *high confidence* attributable to the anthropogenic effects and misuse of Earth's resources. (IPCC AR6, 2023).

The United Nations Framework Convention on Climate Change (UNFCCC) was initiated in 1992, an international treaty and framework to combat climate change and global warming. In 2015, the UNFCCC (Paris Agreement) identified climate change as an "urgent and potentially irreversible threat to human societies and the planet…[requiring] the widest possible cooperation" (Paris Agreement, 2015). There is much work to be done in order for humanity to combat the effects of climate change by the various deadlines of the United Nations' International Panel on Climate Change. Keeping within limits such at 1.5°C warming, and a variety of timing constraints approximating change necessary to occur by 2030-2070 is crucial to preserving, maintaining, and supporting life on the Planet Earth (IPCC AR6, 2023). Direct action must be taken to mitigate the harms of climate change, and reinstate a sustainable balance between life on this planet. The United Nations have created a set of Sustainable Development Goals (SDGs) as well as a plethora of actionable literature to address the environment, political, social, and economic challenges facing the world (UN DESA, 2016).

As this detriment to humanity and nature, as separate and one, wrecks havoc on Earth, the Global North is gaining recognition as impacts exceed a stage of chosen cognitive distance. The term *Anthropocene* was coined in the 1980s, with popularization gaining momentum in the early 2000s (Mahli, 2017). Controversial, in its definition, categorizing the current geological time as one of a new epoch, actualized in the mid 20th century around the time of the *Great Acceleration* (Mahli, 2017). The Anthropocene has been used by artists such as Edwards Burtynsky to define and display the age of human impact upon environment and climate. Initially from an Earth sciences' approach, this informal categorization of epoch has been used in international context, though is notably coined by European scientists, noticing not the impact that all humans have had on the planet, but extractive, non-stewards of the land. It is unfair to speak to the Anthropocene as the global community's impact on climate change and the transformation of the planet, as there have been many communities that continue to exist in equilibrium with nature as they have since immemorial.

The Global North holds accountability for extractive measures, the responsibility of historical precedent that must be compensated for, through repatriation and development of sustainable practices ensuring humanity may continue survival on Earth (Sharp, 2022). The acknowledgment needed for a paradigmatic shift in sustainable practice must encapsulate those in positions of power to: through power, resource, and politics adjust our systems of living; balancing a top-down approach with the bottom-up (Sharp, 2022). Generally, the more support and understanding of the crisis at hand, the more potential for actionable difference in small and large ways. In this, education plays a role of utmost importance (Janes, 2022).

It is crucial to educate, in accessible, diverse, and equitable manners on the realities of climate change, and towards what may be done (Bokova, 2016; Janes, 2022; Seggar, 2021; Sutton, 2022). Solution oriented thinking in education empowers the masses towards action, and the diversification of classical Western education styles (academic classrooms, lecture settings) is needed to address the United Nations' Sustainable Development Goal: Target 13.3 "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning." (UN DESA, 2023). Education works towards climate action, and adaptation from the crisis through inspiration and complete understanding – eliminating the biased pictures formed by media (United Nations, n.d.). Education gives knowledge, skills, values, and attributes to individuals, empowering them to act as agents as change, something deeply needed to address the climate crisis (UNESCO, 1997). Summarized by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) "The goal of education is to make people wiser, more knowledgeable, better informed, ethical, responsible, critical and capable of continuing to learn…Education, in short, is humanity's best hope and most effective means in the quest to achieve sustainable development." (UNESCO 1997). The international community addresses the importance of education in climate for social transformation, and a series of conversations to specifically speak to this importance has continued from May 2023 to December 2023 by UNESCO and UNFCCC (UN DESA, 2023).

In moving through this climate for social transformation, non-formal, and in-formal education plays an integral role. There is an inherent prejudice placed upon western, urban-centric, and school-based education, such that these forms of teaching and learning are held at standards above the non-formal and in-formal forms of education, as they are seen synonymously with

learning (Feinstein, 2019). This falsely attributed synonymous nature excludes non-formal education from public perceptions' recognition of education in places of change-making and revolution. In the interdisciplinary and multi-faceted subjects of sustainability and the climate crisis, it is very important to include the consideration of all types of education, those in formal classroom settings and not. As David Orr speaks to the power of education, he states that "it is not education, but education of a certain kind, that will serve us. And the current model….so often more focused on turning children into efficient corporate units rather than curious and open-minded adults, will only lead us further down the wrong [unsustainable] path." – David W. Orr. (1996). Institutions, organizations, and communities are all integral vessels of engagement and education outside of contemporary "formal" teachings.

Accessibility of formal education, especially as the post-secondary level is restricted by cost and socio-economic factors. The style of learning may be stagnant with little room for interpretation available with the exception of individual educators and accessibility needs provisions (Orr, 1996). The use of institutional spaces is a necessary part of an "*ecological paradigm*" in where education for sustainable development (ESD) is valued above top-down regulatory education (Orr, 1991). Museums stand as one of these spaces, providing an education beyond regulatory schooling systems, catalysts for connecting individuals and families to "what is wonderous and at risk" (Sutton, 2020). Classical schooling institutions may be hostile territories for vulnerable students and families, removing their ability to build community resilience [in the face of climate change], or educate revolving adaptive capacities (Feinstein, 2019).

Museums have power as secondary spaces for education, to serve the public in intergenerational, community centric, and conversational manners (Janes, 2023; Sutton & Robinson, 2020). Varied styles of educational approaches increase the adaptive potential and inclusivity of spaces; this technique of education is often found in museum spaces, thus proving their ability to enhance this intersectional niche of information conveyance (Feinstein, 2019). The informal and varied style of education through museum experiences allows many different types of learners to experience the climate conversation, through the visual, written, auditory, and interactive exhibits. Museums thus have a great opportunity to influence and educate the public, in contributions to the public's decision-making abilities (Feinstein, 2019).

Museums are not neutral spaces (Hunt, 2021). They represent a niche ability to educate, through given trust from large sectors of the general public. Museums are often respected in a manner greater than government, news, or academic institutions, despite collaboration with all of these parties (Hunt, 2021). The implementation of climate education in these public institutions of knowledge is crucial to for a general educational approach that exceeds preconceptions of media, and is predominantly non-barriered.

Museums hold the power to influence and educate the public on accessible levels, using multimedia displays and bite-sized pieces of information for digestible intake of scientific understanding and innovation. The intergenerational, and more accessible manner of museums have the ability to educate larger sects of the public, outside of academic and professional settings, in where understanding of the world, and fun are intertwined. Museums hold "the diverse physical and intellectual resources, abilities, creativity, freedom, and authority to foster the changes the world needs most" (Sutton et al. 2017, 151). The museum structures are considered to be trustworthy, and sound institutions, and education through museum displays and exhibits is a voluntary, willing act of participation, from which individuals of all backgrounds and ages are able to learn (Janes, 2023; ICOM, 2023).

The conversation surrounding environmental education in museum spaces in Canada inherently demands consideration of intersectionality of the matter. Decolonization of museums and museum-type institutions is an integral part of accelerating and equitably developing these spaces (Sharp, 2022). In educating the "public" as spoken to in many senses, museum institutions must be aware of the entirety of the public population, and actively work to adapt spaces to exist as non-exclusionary (Janes, 2023). This applies globally, with issues of divestment and repatriation at hand, though holds a unique weight within "Canada", as apart of the confines of this study. My work aims to surmise existing literature and perspectives of professionals within the field of museology, regarding climate engagement within museums, and intrinsic to the conversation stands community resilience building, and active anti-colonial practices (Sharp, 2022; Janes, 2023).

The International Council of Museums at its General Assembly Meeting in Kyoto in September 2019 adopted a resolution 'On Sustainability and the Implementation of Agenda 2030, Transforming Our World' which calls on museums world-wide to: "acknowledge and reduce our

environmental impact, including our carbon footprint, and help secure a sustainable future for all inhabitants of the planet: human and non-human" (ICOM, 2019). In accordance with the United Nations's SDGs, specifically target 13 climate action, museums <u>ought</u> to play a role in education of the general public as a part of cultural participation support.

Museums and galleries internationally have begun to accelerate contributions to climate awareness in exhibition and practice (McGhie, 2020). Awareness is prevalent, spotlighting large scale installments such as the *Pollution Pods* of NTNU (Sommer et al., 2019), *The Human Factor* of the Royal Saskatchewan Museum (Sutter, 2008), *Carbon Ruins* of the Ethnographic Museum of Stockholm, the Museums and Climate Change Network highlight exhibits that directly use global warming and climate change in art, research, and educational pieces (MCCN, 2024). There are noted institutions such as the Madison Children's Museum, Carnagie Museum of Natural History, the Art Gallery of Ontario, the Science Museum of London, and the Australian Museums that are recognized by key figures in the field for their institutional efforts towards climate awareness – notably Dr. Sarah Sutton, CEO of Environment & Culture Partners (formerly Sustainable Museums) consultancy (2020).

Dialogue between sustainability advocates, museology professionals, and international policy groups has been recorded in a number of ways, through symposiums to podcasts, journals to websites. There is advocacy for the responsibilities and potentials of museums to be actualized, deconstructing their historical traditionalism, and setting education and anti-colonial practice in climate work at the forefront of agendas (Janes, 2022). Non-prescriptive policies on a global and national level suggest resolutions to action, internally and externally within historic and new institutions, though the barriers stopping progress from occuring at a more profound depth, and faster rate are largely unspoken about. The actions museums must take predominantly remain the hypothetical potential, rather than the actionable reality (Janes ed. Sandell, 2019; Newell et al., 2019).

This study aims to explore the role of Canadian museums in climate change education and awareness; phenomenologically examining what *has been done, is being done, should be done, and are barriers to future progressions.* Through conducting in-depth interviews with key stakeholders, the study will investigate how museum professionals from both academic and

curatorial backgrounds perceive their institutions' contributions to climate change awareness and education, potential future contributions, and any existing barriers to engagement.

The research will focus on how these professionals have witnessed and interpreted the evolution of climate change education in museums, identifying both positive educational changes and challenges. It aims to provide a comprehensive view of Canadian museums' past, present, and potential future involvement in climate engagement, addressing a research gap in this area. This is particularly relevant in light of the Canadian Museums Association (CMA)'s 2021 Resolution on the Climate Crisis.

The central question guiding this study is: "How do museological and curatorial professionals within Canada perceive organizational progress, strategies, and barriers for engaging with the climate change movement?" The objectives include understanding and documenting these perspectives and conducting a thematic analysis to identify common themes across the data to examine if the reinforce existing literature. In addition, this study will pay special attention to the strategies of climate engagement employed by Canadian museums, examining the environmental practices in place, expansion of programing, and evaluating what barriers stand institutionally and systematically within Canada, finally leading to recommendations on what more can be done to advance this cause.

Chapter 2 : Literature Review

What is a museum in the Age of the Anthropocene?

The following literature review provides an overview of current scholarship and policy related to museums and the role they play in the current climate crisis. Within international and national spheres, the roles and responsibilities of museums have been discussed in relation to the climate crisis, and furthering sustainable development. The general definition of museum that will be used in this thesis and also used by the Government of Canada is that of the International Council of Museums where:

> A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection, and knowledge sharing. (ICOM, 2022).

There are over 50,000 museums worldwide, with higher estimates leaning towards 80,000 (McGhie, 2020). The power this consortium of small and large institutions may have is comparable to small country in magnitude (McGhie, 2019). The consolidated power to educate and research provides these institutions with the power to engage with sustainable development, and climate education meaningfully.

The degree to which all museums engage in the climate crisis is not fully known. In many cases, natural history, and nature-based museums have been the predominant type of museum to focus on the climate as they often play a role in the semi-accessible scientific education in public spaces (Cameron et al., 2017). Dr. Janet Swim's quantitative analysis of the effects of actionable training and initiative processes in museums towards a goal of climate education within her paper on *Climate Change education at nature-based museums* (2017) show findings that support the work of nature-based museums in engaging with climate education at a rate higher than an "average museum". Opposingly, art galleries have engaged with climate-anxiety, eco-grief, and the climate crisis through aesthetic and emotional engagement that works as a powerful tool to motivate action on behalf of the planet (Sutton & Robinson, 2020). Noting the breadth of varied institutions, from natural history to heritage, zoos to art galleries, it is recognized that the details and specificities of

each type of institutions' capacities may not be in depth addressed within the confines of this research and study. The general definition for museum as stated above will continue to be used to encapsulate these institutional spaces.

What is the role of museums in the Anthropocene?

Museums hold a breadth of varied institutional capacities. These capacities change the mission, manner and extent of engagement museums may hold in communities; however, there are consistencies. Museums are educational institutions; they preserve and provide knowledge of artifact and technique to local and global communities of public, scholars, and more (Swim et al., 2017; Sutton & Robinson, 2020). These spaces promote inter-generational learning, and increase the ability to communicate with various learner types through a variety of educational mediums including but not limited to artifact, text, video, and tactile (Cameron et al., 2017). Museums hold these roles in communities and cities, small and large, to uphold these longstanding traditions of preservation and education (Sutton et al., 2017).

The non-governmental position in which museums stand is argued by Cameron et al. (2017) to be crucial in trust benefactors from the public, especially compared to more politically defined sectors. Museums hold the individual freedom of authority, and institutional freedom of resources to enhance societal changes within the world, contributing to one in where communities may flourish (Sutton et al., 2017). This relevancy and position is only possible through the connection to public trust that these institutions hold (Cameron et al., 2017). Museums are trusted as information sources, notably second only to "science organizations far ahead of mainstream media and government" (Cameron et al., 2017). This places the museum sector in a niche place of knowledge holders with an intrinsic responsibility to effectively educate and update their own systems and structures, as well as in public exhibit display (Newell et al., 2017). To remain relevant and effective, museums must continue to earn the trust of their communities by updating material, and actively working to create safe, inclusive spaces (Janes, 2023).

Traditional institutional presence may become siloed, if there are not active initiatives to update institutions, to operate in open, collaborative, community-focused manners (Sutton, 2018). To amend this, a systems-thinking approach *ought* to be taken by museums worldwide, to accept

their role as a part of larger society, and to not remain stagnant in the past (Sutton, 2018). Sustainable development is an integral part of this system-thinking approach, widening lens to accept, acknowledge, and act on the social, economic, and environmental concerns of our current epoch.

Increasingly in conversation of sustainable development and museums, the fourth pillar of sustainability – *culture* – has been considered in addition to environment, economic, and social (Iannini & Pedretti, 2021). This additional pillar allows museums to engage with the reconsideration of preservation and cultural heritage techniques, in addition to engaging with periphery "meta-functions" such as creating spaces for open dialogue, room to disseminate research, and educating above solely preserving cultural material (Iannini & Pedretti, 2021).

The role that museums have in heritage and cultural development is intrinsically tied to climate change and environmental sustainability (McGhie, 2020). They hold key roles in defining, addressing, and delivering actionable change on the defining global crises of our lives (McGhie, 2020). Accelerating education on climate through the museums' abilities to use research and dialogue will be one of museums' largest roles and considerations in the global community throughout the coming years (McGhie, 2018).

Global Scene of Climate Engagement and Sustainability in Museums

International and national policy and recommendations has been founded on the consortiums of independent scholars' research, as well as community engagement studies showcased at symposiums. These built the foundation for the organizational expectations of what ought to be done by museums across the world to uphold responsibilities in the age of the Anthropocene.

International discussion on climate creates a global precedent of understanding in responsibility through organizationally unified voices such as the International Council of Museums (ICOM). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has contributed to global conversation revolving sustainable development in museums as educational platforms, and spaces of invaluable cultural heritage (Bokova, 2016). These organizations have created a platform for sharing and the standardization of museum-focused sustainable progression, including the setting of goals, in accordance with larger organizations' climate

action plans such as the United Nations (UN DESA, 2023). Resolutions and action plans have been put forth in international museum communities increasingly within the past 10 years, including recent examples below.

Building key international precedent, UNESCO published explicit standards and expectations of museums within the Paris Agreement of United Nations' Conference of Parties 21 in Paris, 2015. The UNESCO recommendations adopted by General Conference of November 2015 state the importance of museums to serve the needs of community, as spaces for "cultural transmission, intercultural dialogue, learning, discussion, and training, also play[ing] an important role in education (formal, informal, and lifelong learning), social cohesion and sustainable development" (Bokova, 2016). These recommendations clearly state roles of the museums of the world to serve community as spaces for conversations and education (McGhie, 2019).

At the 2018 'International Symposium on Climate Change and Museums' held in Manchester (UK), the power of museums in the climate crisis was discussed in detail. As existing infrastructure, with over 50,000 museums worldwide, they have deep roots that will be useful in the *ecological paradigm* – a transition to advanced understanding of environment and world (McGhie, 2018, Orr, 1996). The wide range of topics within various museums, and social trust established in the institutions, is paired with the organizational freedom for museums to work with a wide range of stakeholders, including high policy organizations such as the UNFCC, IPCC, as well as individuals and grassroot movements amongst communities (McGhie, 2018). They are thus arguably a perfect medium to bridge gaps of knowledge, connection, and engagement with the climate crisis and the UN Sustainable Development Goals (SDGs), with communities across the world (McGhie, 2018, McGhie, 2019). As noted in a non-party stakeholder submission by Henry McGhie of Manchester University, to the Talona dialogue at the International Panel on Climate Change symposium (2018), is not only UN SDG target 13.3 that may be addressed by climate engagement within museums, but additionally:

- 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development.

- 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.
- 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
- 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
- 13.2 Integrate climate change measures into national policies, strategies and planning.
- 17.16 Enhance the global partnership for sustainable development, complemented by multistakeholder partnerships that mobilize and share knowledge, expertise, technology, and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries.

The influence that museums can have in local and international communities in furthering the SDGs and climate action leads to set a precedent to the need for museums to act as role leaders, empowering individuals but also holding space for difficult conversations around sustainability in where their own operational actions must be reflected upon as well (McGhie, 2019).

In 2018, ICOM established a Working Group on Sustainability to help advance the ICOM community's contributions to sustainability and sustainable development (McGhie, 2019). Then in 2019, ICOM's 34th General Assembly in Kyoto put forth five resolutions. The first and fifth dealt directly with sustainability's integration in museums (Mouliou, 2019). The first resolution: "On sustainability and the implementation of Agenda 2030, Transforming our World", acknowledges the trusted source of knowledge that museums are, and their presence ideally positioned to "empower the global society to collectively imagine, design, and create a sustainable future for all" as well as recognising "that all museums have a role to play in shaping and creating a sustainable future through various programmes, partnerships and operations;" (ICOM, 2019). These international, global standards of assembled thought speak to ideas that affirm the power that these institutions and spaces hold in society, and therefore their inherent responsibilities.

In 2023, ICOM in accordance with the 2019 resolutions, published a printable "action plan" for all its members, encouraging internal ambitions, actions, and self-evaluations towards sustainable development (ICOM, 2023). Guiding principles included: "An interdisciplinary, multi-sectoral, multistakeholder and participatory approach" and "a holistic, systematic

approach" to development and change. (ICOM, 2023). These modern recommendations reflect the precedent of existing literature, and though non-enforceable, create a social standard for museum-type institutions to update themselves as apart of the global community, and current era of climate crisis.

Canadian Scene of Climate Engagement and Sustainability in Museums

Canadian museums hold a strong, proliferate status within the nation as respected, objective, and educational institutions and spaces (Cameron et al., 2017, Hunt, 2021). The power they hold as respected institutions is deeply rooted in colonial, and historically extractive origins (Janes, 2022, Sharp, 2022); the irony stands that these institutions ought now, to stand with modern and moving society, examine their foundations and hold a strong mission and intention (Anderson, 2022). Canadian museums must stand up to the realities and hopes of climate change, using their well-established roots to take initiative on educational and anti-colonial practices (Cameron et al., 2017, Janes, 2022).

Within Canada, there are individuals that have been hired to roles specifically for climate curation, as well as those that have carved these roles out for themselves through personal intrigue within their careers. Climate engagement, and climate curation – to tell the story of climate change and what we can do about it (Sutter, 2008), has been spoken about for decades now, however within the past few years, notable milestones have occurred. For example, the creation of climate curation titles, resolutions regarding climate from the CMA, and in a world recovering from the effects of COVID-19, networking events specific to the action Canadian museums can take for climate justice.

Canadian coalitions and non-profit organizations have unified and amplified climate-conscious voices within the museum and curatorial sector, and continue to grow. The Canadian – originated, Coalition for Museums for Climate Justice (CMCJ) "mobilizes and supports Canadian museum workers and their organizations in building public awareness, mitigation, and resilience in the face of climate change" (Ozelli, 2021) through voluntary membership. The CMCJ has created a unique and powerful voice within the Canadian scene, though is an international organization. In founding the CMCJ, Dr. Robert Janes unified voices advocating for internal renovation to museum structures (physical and governmental) to increase internal sustainable practice, advocate for the environmental awareness and education, as well as caring

for members of the coalition to fulfill their roles as individuals as strong, climate-focused people that uplift one another (Fast, 2020).

Associations such as the Canadian Museums Association (CMA), Association of Natural History Museums (ANHM), and CMCJ have extensive grey literature regarding the engagement of museums in climate action. The CMA in particular, has advocated for the engagement of museums under in climate action through their "*Resolution concerning the Climate Crisis for consideration of members of the Canadian Museum Association"* at the 2021 Annual General Meeting, held on May 3rd, 2021. This piece of work states directly the necessity of museums engagement in the education of climate crisis across Canada, though in a lens of potentiality over reality. This is seen often, with discussions holding a potential "future" perspective on change rather than a current "reality" perspective (Janes ed. Sandell 2019; Newell, et al., 2019). These realities of change may be slow moving, yet there are solid realities in new programing with governmental support in Canada.

SCALE, the Sectoral Climate Arts Leadership for the Emergency is a Canadian-founded organization who recognizes the need to develop strategy, align activities, and activate the leadership of the arts and culture sector in the climate emergency, with an understanding that the sector can help to mobilize to transform both itself and wider society, as well as with the recognition that to date there is no national structure in place to help advance and align this work. Established in 2021, this organization is a part of a movement to increase climate engagement within all sectors for a more sustainable world (SCALE, n.d.). Included in this movement is the Canadian Department of Heritage's Consultative Committee on Greening the Culture Sector. From the federal government of Canada, emerged also in 2021 a committee to support a green shift within the arts, culture, and heritage sectors (Heritage Canada, 2021). This committee is appointed to inform policy development in the designated sector, providing a voice and platform for individuals to inform policy-oriented change at levels of government and hierarchical powers.

Individual Canadian provincial organizations have ranged in engagement with climate, due to a multitude of factors, from resource availability to accessibility of shifting thought in varied political states. The British Colombia Museums' Association (BCMA) has published a great amount of grey literature on climate in museums, in the form of podcasts, blog posts, and

articles. They have published and shared resources online that demonstrate the need for climate action within museums, following international and academic precedent. With the support of the Government of Canada, the BCMA launched CALM – the Climate Action and Leadership for Museums initiative (Hunt, 2021). Using simplified language to discuss local implications of climate change, in addition to creating graphs, the BCMA has both created and shared networks of resources on public response to climate in museums (Hunt, 2021). For example, shared resources regarding how individuals and organizations may involve themselves with climate, partnerships with other provincial organizations such as the Museums' Association of Alberta (MAS), regarding risk management for extreme weather events – caused by climate change. CALM facilitates these connections, providing networked support to highlight leadership, develop tools for climate emergency response, and share research in the field (Hunt, 2021, BCMA, 2024).

Limitations to Canadian Literature

Despite these organizational milestones, an environmental scan of Canadian curatorial literature and data shows that there is a lack of information on the presence and specificity of materialized climate curation in Canada.

These gaps lay primarily in the way in which information is presented in museum exhibition spaces, and its gradual evolution. Using anecdotal evidence to reaffirm the lack of recorded knowledge, it is proven that this is due to the way in which climate focus is integrated into existing exhibits. Small panels with information specific to species endangerment, global warming due to anthropogenic CO_2 pollution, degradation of marine ecosystems due to ocean acidification, and biodiversity loss due to land use may be placed into pre-existing exhibits in major environmental/nature-oriented museums. The implementation of these small pieces of knowledge are not overtly/clearly recorded, nor are the reactions/interpretations of visitors (McGhie, 2020).

There are records of climate-specific exhibits as recorded by organizations such as the Museums for Climate Change Network (MCCN) however the thematic, climate specific record of exhibits such as the Wildlife Photography exhibitions at the ROM annually, which often have strong themes of anthropogenic impact on natural habitats in individual works are not available. Grey literature and archival material covering the prevalence of these climatic themes within Canadian

museums has proven very minimal, or difficult to acquire. Difficulty accessing grey literature recording the climate focused exhibitions of the past has created an environment in which the anecdotal and lived experiences of those within these fields has become of utmost importance.

Perspectives of those in places of strong advocacy and enactment power are often not recorded, especially not for professional academic purposes, and advocacy works and policies amongst organizations and associations do not directly address the constraints or opportunities to engage with climate and sustainable development.

How ought museums engage with their responsibilities in the Age of the Anthropocene?

<u>*Internal Adaptation and Modernizations*</u>

Existing literature shows trends of the need for museums to adapt internally, modernizing social and physical structures to show relevancy and progression in this time of climate change. This adaptation has been proven critical, the works of Dr. Sarah Sutton advocating for COVID-19 to act as a catalyst to key internal changes within museum spheres (Sutton, 2020). The evolving capacities of museums during and post COVID-19 proved to rework ingrained historical membranes in promotion of climate action and environmental awareness (Sutton, 2020). Dr. Sutton's leadership in climate engagement in museums is recognized internationally, as her voice for progress within cultural institutions has accelerated change for environmental leadership within these spaces. She co-founded and is now instituted as the Chief Executive Officer for the nonprofit Environment & Culture Partners (formerly 'Sustainable Museums'). In this, awareness for the need to ingrain environmental awareness and education across all sectors, including the cultural sector (of which museums are a part) has been given a platform.

There is a need for continued organizational voice, and institutionally implemented adaptation measures to bring museums along with the progression of a socially adapting society (Sutton, 2020; Janes, 2022). Internal motivation is the key puzzle piece here, removing the impartiality of the institutions by placing museums within a relevant societal and cultural context (Anderson, 2022). In order to become "relevant in the twenty-first century", according to Dr. Gail Anderson within Chatter Marks, individual institutions ought to update internal structures through a series of steps. These including active awareness of the climate crisis, steps towards decolonization, and engaging with the varied accessibility needs of community (Anderson, 2022). This approach

tackles the contemporary socio-cultural landscape's contrast with the majority of museums in operation – however standing against the traditionalist norms of preservations as the primary and sole focus of these cultural institutions is exactly what needs to happen for museums to remain impactful and alive within the age of the Anthropocene (Anderson, 2022; Janes, 2022).

Anticolonial Practice

With considerations of a multistakeholder, holistic, and participatory approach to sustainable development, it is integral to recognize that conversations about the sustainable development of these institutional spaces demand conversation regarding the colonial nature of museums in many places (Janes, 2022; Wali & Collins, 2023) . The majority of museums are founded on the backs of oppressive, settler colonialist systems and practices, those that have and continue to marginalize and oppress Indigenous Peoples, as well as push planetary boundaries to points of no return (Janes, 2022). Current works on decolonization in museum practices range in varying lenses of perception; from scholarly thought of which the process of decolonization is seen as impossible, to opposing perspectives in where museums are held accountable and centered as a space of dialogue and collaboration (Wali & Collins, 2023). There is a necessity of conversation revolving decolonization of museum spaces within climate engagement and education in these institutions. The intrinsically interwoven nature of museum's roles to resist societal collapse underway throughout the Anthropocene, engaging with environment, community, and reworking definitions and practices in honour of these two things (Janes, 2022; 2023).

Engaging with topics such as the Anthropogenic climate crisis, requires conversations and actions on decolonization, divestment, and paradigmatic shifts in the museums industry noting which voices are highlighted, and which are not (Maranda, 2021). In this, transparency becomes a central topic in the intersection of decolonization and environmentalism, as the need to have a tangible grasp on efforts being made (or not) is crucial to holding cultural institutions accountable for their actions and coloniality (Walsh, 2022). The term anthropogenic here is used to speak to a perception and a way of life that exists in separation and alienation from nature as we refer to the climate crisis. This attitude is founded on a way of life that exists under a neoliberal economic structure, based in white centric settler colonialism, use of extractive origins in nature and people. The term is not encompassing of the Indigenous Peoples and communities that have stewarded the land of Turtle Island since immemorial.

In fostering connection to the Indigenous communities of Turtle Island, Sophie Walsh speaks to the importance of community-centred museums, such as ecomuseums, in breaking down exclusionary and inherently oppressive practices in heritage representation and institutions while instating environmentally conscious practices (Walsh, 2022). Originally developed in France, in the 1970s to foster holistic heritage collection and celebration, the concept of ecomusuems have been employed across the world, including Saskatchewan, Canada by the Saskatchewan Ecomuseums Initiative (SEI) (Heritage Saskatchewan, 2024).

In further examinations of literature, it is evident that the topic of climate engagement demands the furthering of conversation from environmental sustainability but to a place of holistic sustainable reform, specifically the decolonization of museum-type institutions, creating safe spaces that are inclusive of community (Janes, 2023). Dr. Camille-Mary Sharp's dissertation "*Decolonize and Divest: The Changing Landscape of Oil-Sponsored Museums in Canada*" shows the paradoxical practices of funding and ethos, through case studies that illustrate "contemporary manifestations of extractive practices" that have and continue to harm the land and peoples of Canda/Turtle Island (Sharp, 2022). Given the hegemonic influence of museums in Canada, anti-colonial museology and "behind the scenes" work of museums must reflect the "socially engaged frameworks underpinning museum work in Canada" (Sharp, 2022). Though it is integral for the general/global museum community to speak about these practices as a part of sustainable updating, Turtle Island demands specific attention to this matter, and is intrinsically tied to environmental upgrading as tied to community resilience.

Programming, Outreach, and Community

Museums' primary role within the climate crisis is to educate, standing to continue relevancy within a changing society through anti-colonial practices and internal modernization adaptations. At the root of these supports to museums' roles, they hold a responsibility to educate *pre*(Sutton, 2020). To do this, programming and outreach are crucial considerations, using research to inform better educational practices, and relevant topics (Janes, 2022; Anderson, 2022). This encompasses the need for communications, through campaigns that target varied and inclusive audiences (Janes, 2022).

Research revolving this will improve the manner in which communications and lenses are approached in both engaging with the public, and talking about difficult issues such as climate change (Sutter, 2008). Canadian Dr. Glen Sutter's exhibit at the Royal Museum of Saskatchewan *The Human Factor* and following published work is a unique in-depth case study consideration of sustainability in museum exhibits associated perceptions. This study from 2008 showed that provocative exhibitions in museums may foster awareness of issues through both cognitive and emotional response, allowing for individuals to each be situated along that spectrum; this proved the challenged with sustainability in museums from 2008, though barriers such as need for an institution to take an objective stance on politicized issues that may affect funding, or public attendance still stand very much so today (Sutter, 2008).

Cooperation between museums and education spaces, in efforts of sharing a vision of sustainable environmentalism and climate action, may improve the capacity to educate the public about climate change (Sutton, 2020; Janes, 2022). In using approaches that pair with educational institutions, museums hold a space for learning to happen, in a new setting that encourages dialogue – conversations rather than lecture (Janes, 2023). Conversation empowers the individuals, as impacted actors within the story of the climate crisis to act in environment-positive manners, understanding the concept of human impact – without holding climate anxiety, eco-grief, or a rejection of concept in "mental traps" (Sutton & Robinson, 2020). Strategic planning to engage with groups of the public will allow museums and alike institutions to perform their duties within the climate crisis, as educators and community resilience builders through knowledge and adaptivity (Pop et al., 2019).

Museums' ought to educate, and to do this, engagement in many forms is needed, from collaborative partnerships, to the use of varied techniques, whether that be emotional, empirical, or another, and the overall creation of a space which may hold room for dialogue and conversations around the climate crisis (Janes, 2023; Pop et al., 2019; Walsh, 2022). The climate crisis impacts us all, in small and large ways, in order to understand how museums best serve their communities in surviving this catastrophic era of environmental detriment, we must first understand what has been done, and what stands in the way of further progression.

Summary of Literature Review

Current literature on the subject of climate engagement within museums covers many aspects of the supposedly inherent responsibility for museums in this area. The perceived trust and neutrality of museums must be simultaneously harnessed and challenged, as they stand actively towards a more sustainable future due to the place they hold in society. Themes include internal adaptation, decolonization of spaces, accessibility of education, and outreach upholding the international sustainable development goals of the United Nations's collective efforts. We see museums highlighted as pedagogical institutions of knowledge, with the opportunity to harness their occupation of space to foster dialogue, allowing for compassionate, bold, and difficult conversations to be had (BCMA, 2024). It is notable the lack of Canadian – specific research, though foundational voices within this nexus of field have arisen from this area. This study aims to fill a part of this research gap within Canada, highlighting updated perspectives on the barriers that present this issue, and the perceived responsibilities and opportunities for museums to step up to action.

Chapter 3 : Research Methods

Overview of Methods

This study uses qualitative method to answer the research question: "How do museological and curatorial professionals within Canada perceive organizational progress, strategies, and barriers for engaging with the climate change movement?". In particular, and using a phenomenological approach (Iannini & Pedretti, 2022), this study aims to examine the perspectives of Canadian professionals within this "cultural" (whether doing work that is curatorial and/or academic in nature), to see how they view the engagement of the Canadian museum sector with climate change and education. Identifying the contextual patterns of what <u>has</u> been done what <u>is</u> being done and what <u>could</u> or should be done, as well as what are the <u>barriers</u> in the opinions of these individuals offers a general sense as to how these particular professional and their respective institutions have engaged with climate goals through educational and institutional practices and what role they envision for museums to play in the current climate crisis.

Data Collection

This research involved interviews with nine participants who were selected using non-probabilistic purposeful sampling (Palys & Atchison, 2014). After receiving Research Ethics Board approval [#2023-7005], participants took part in semi-structured interviews over Zoom between February and March of 2024, and the interviews ranged from 60-90 minutes. Interview questions focused on the themes of the research objectives, looking to identify past initiatives, measures of effective practice, perceived obligations of museums in the climate crisis, and barriers to progression. Details on the process and justification for the methodological choices in this thesis are described below.

Sample and Sampling Techniques

Interview-based, qualitative research was chosen as the primary method of data collection, as informed by literature from Palys & Atchison (2014), and Cohen et al., (2000). The interview approach to qualitative research provides outcomes that are based on perspectives and lived experiences within the museology and climate education field. In comparing the results of

perspectives from interviews with existing literature, a thematic cross examination to identify the needs of the Canadian museology sector as experienced by climate-engaged individuals but supported with existing literature.

Qualitative methodology was used, a form of research where the interpretation of data and implicit bias of human nature forms the knowledge upon which summarization and conclusions/recommendations may be made (Corbin & Strauss, 2015). Given existing discussion within this nexus of interests surrounding itself upon the impact climate engagement has with the public, amongst humans, this methodology was found to be suitable. The specific type of qualitative methodology follows grounded theory, in accordance with Glaser and Strauss's (1967) development of this bottom-up approach to qualitative data analysis. Interviews were used as the basis of data collection. As Cohen et al. (2000) state: "The use of the interview in research marks a move away from seeing human subjects as simply manipulable and data as somehow external to individuals, and towards regarding knowledge as generated between humans, often through conversations". The humanity and knowledge respected in interview data analysis provides a unique perspective to the topic of engagement with the humans of the public upon which this study's primary research questions preside.

The interviewed study population consisted of professionals in museological and academic contexts that are engaged with the Canadian museums' structural involvement in the climate crisis. Scholars, academics, professionals, and interns were considered, all on the progressing recommendations of prior interviewees. A non-probabilistic purposive snowballing technique was used to reduce implicit bias in choice for professionals' perspectives on the study objectives; ensuring entry to a conversation amongst professionals who occupy the niche sector of climate within museums without media elicited bias (Parker & Scott, 2019). Within a small community such as this one, including retirees and individuals whos contacts are not readily available online in the same manner as one another, this snowballing approach is most well-suited (Parker & Scott, 2019).

To start the snowballing process, a known expert in the field within Canada was contacted and using this technique interviews continued from the initial contact point. Recruitment was based on voluntary participation, with contacts volunteered by prior interviewees. The recruitment "snowballed" through recommendations, with only criteria including that of the delimitations of

my study – such that the individual must work within the Canadian sector, and that they have experience in any context with museum work, curatorial work, and/or academic context evaluating museums in a climate context. Participants were contacted by email, following a script approved by the Dalhousie REB. The initial outreach email included a small amount of basic study information, including the benefits and aims of the study, and the details of what was being asked of them. Interested participants then returned consent forms, and interviews were scheduled to the interviewee's convenience as best as possible.

Interviews occurred over the course of two months, between mid-January to early March. At the end of each interview the participants were asked to identify others that the research team could consult with, and each participant recommended between 1-3 contacts within Canada to continue the conversation with. Based upon standards in the field for phenomenological research (Crewell et al. (2006), Guest et al. (2007), nine interviews were conducted. Each participant was asked to participate in one, online, semi-structured interview with open-ended questions with the lead researcher (Lenka Tomlinson). They were asked to speak about their own experiences within the developing nexus of sectoral interests and state their opinions on overcoming barriers to further climate engagement in museums. The interviews were structured to be approximately 60-90 minutes long – and all interviews fell within this range. Interviewees ranged in professional organizational affiliation (Table 01), as well as geographical location (Table 02).

Table 1.0 List of Participants' Positions within the Museology Sector. Online randomization performed from initial order of interviews.

Participant Number	Position
Participant 1	Gallery Sustainable Projects Manager
Participant 2	Professor of Art History and Museologies
Participant 3	Curator of Human Ecology
Participant 4	Prev. Executive Director of Provincial Museums Association
Participant 5	Gallery General Administration & Strategic Projects Manager
Participant 6	Prev. Executive Director of Provincial Museums Association
Participant 7	Curator of Climate Change
Participant 8	Executive Director of Provincial Museums Association
Participant 9	Operations Manager of Provincial Museums Association

Table 2.0 List of interviewee professionals' institutions and locations. Online randomization performed from Table 1.0.

Institution	Canadian Province
Royal Saskatchewan Museum	Saskatchewan
Faculty of Fine Arts Gallery at Concordia University	Québec
Museums Association of Saskatchewan	Saskatchewan
British Colombia Museums' Association	British Colombia
Royal Ontario Museum	Ontario
Université du Québec a Montréal	Québec
Museums Association of Saskatchewan	Saskatchewan
Musée d'art contemporain de Montréal	Québec
Association of Nova Scotia Museums	Nova Scotia

To reduce identifiability, randomization tools were used to scramble the order in both Table 01 and Table 02 above. These tables demonstrate that 4 of the 9 interviewees are associated with provincial museum associations, and 2 are employed in project and managerial positions within museums. Further, 2 of the 9 participants were in curatorial positions within museums at the time of the interview with 1 participant working directly within the academic sphere. The geographical location of the participants ranges from the west to the east coasts of Canada. Though purposive, the study employed no bias to location, however the non-probabilistic nature of snowball sampling resulted in a wide range of location and professions.

Interviews concluded at the point at which data saturation was reached, a point where new interviews no longer yielded significantly new insights (Corbin & Strauss, 2015). This was deducted as identified themes began to recur in frequence with each asked question, indicating similarities that were prominent enough to find concrete similarities within groupings and coding *a posteriori*. Following the recommendations of Crewell et al. (2006), and Guest et al. (2007) within the iterative data collection process, past the point of 6 confirmed interviews communications were reduced, with the halting of interviews at 9 due to the overlap occurring. It was also mentionable that as well as main thematic similarities reoccurring indicating the ability to stop data collection, the suggested contacts from each interviewee began to overlap. With this saturation of data regarding contacts – it was evident that the study may conclude collection.

Overview of Justification to Approach

This data sampling and collection process was justified within the qualitative measure – based predominantly on the existing literature gaps of quantitative study. It would have been impossible to analyze quantitative, primary, and secondary data within the Canadian sector as there is a lack of this <u>type</u> of research. Therefore, based upon policy and philosophy concluded studies, as well as the lack of empirical data on climate exhibits and types within Canada, a perspective-based approach was taken. This exploratory study used thematic analysis through an inductive, grounded theory approach. Looking to point towards identifying social and lived realities, the completely inductive approach allowed for the generation of theory from a collection of perspective-based data (Bergel et al., 2023). This inductive approach therefore used a thematic analysis, based upon answered interview questions and existing literature.

Data Analysis

To employ this inductive approach, thematic analysis was performed on the collected data samples. The phenomenological data was created from the lead researcher's asking of 8 questions, built to create answers to the study questions at hand. The questions were as follows in Table 03. Supplementary explanations were provided, if needed, on an individual basis.

Table 3.0 List of Interview Questions, as reviewed and approved by the Dalhousie Research Ethics Board [#2023-7005]

Interview Questions
1. Can you tell me a bit about what you see as the predominant mission of your organization?
2. To what extent does engaging the public with the topic of climate change fit into the mission of your organization? And how so/in what ways?
3. What role, if any, do you feel museums <u>should or could</u> play in the climate change movement?
4. Can you tell me about any climate change initiatives that your organization has engaged in in the past?
5. Can you reflect on what was (a) effective or (b) ineffective in these past or present initiatives?
6. Are there any barriers you see to engaging the public in climate change within your organization?
7. Are there specific lenses that you would employ to engage the public in the future?
8. Are there any opportunities you would like to see your organization engaging with going forwards to engage with climate?

These questions were asked during the interviews, which were conducted on Microsoft 360 application TEAMs. They were recorded and transcribed. Transcriptions were edited post-interview to remove errors from automatic TEAMs transcription through recording and stored on the lead researcher' hard drive of personal computer.

These interview transcripts were then analyzed using *a posteriori* coding techniques, for a ground theory approach that focused on identifying similarities between answers in contextual precedent and barriers for enacting further engagement with the climate crisis amongst Canadian museums (Palys et. Atchinson, 2014). Using software tool NVivo, initial word frequency queries were run iteratively, including stop words that were names, filler-words, or provided no context to the study questions (Gora & Kornilaki, 2010). This provided an initial scan upon which a review of further notes allowed for the creation of a codebook. The questions' answers and adjacent notes for each interview were then separated to answer the key study objectives at hand as seen in Table 4.0.

Table 4.0 Groupings of Interview Questions to study objectives for analysis in NVivo

Key Objective/Questions of Study	Interview Question Numbers
What *has* happened? (Block 01)	1, 2, 4, 5a
What *is* happening? (Block 01)	1, 2, 4, 5a
What *should* happen? (Block 02)	3, 7, 8
What are the *barriers*? (Block 03)	6, 5b

Using the groupings of these questions' answers, the interview transcripts were coded using aggregate codes, within software application NVivo, using the inductive approach for a codebook developed as shown below in Table 5.0. The transitionary and otherwise repetitive nature of coding for "What *has* happened?" and "What *is* happening" forced these questions together. The questions are answered separately as they were spoken about in separate tenses and manners, however the data files were coded together to remove repetition.

Table 5.0 Codebook created based upon thematic similarities as arisen from judgement of lead researcher in grounded theory approach to data analysis.

CODEBOOK developed and used in NVivo	
Codes developed for what *has, is,* and *should be happening*	**Codes developed for *barriers***
- Outreach - Advocacy Support - Sustainable Programming - Engagement Analysis - Exhibit Visuals - Sustainable Development - Internal Operations - Spreading Awareness - Adaptation Work - Decolonization - Anti-Colonial Work - Acknowledgment - Relationship Building - Education - Accessible Education - Academic Research - Holistic Programming - Preservation of Artifacts - Community - Resource Sharing - Fostering Dialogue - Diversity of Voices - Creation of Safe Spaces - Personal Approach - Reducing Emotional Distance - Internal Team Building - Locality	- Time and Energy Resource - Of individuals - Of Institutions - Money - Funding - Of Public - Tradition - Politicization - Precedent of "Professional Standard" - Negative Mental Perceptions - Governance and Government

Using NVivo, all data blocks were analyzed using the *a posteriori* code set. Codes were analyzed in an aggregated fashion as appropriate for the subject matter – fostering dialogue and its constituent elements are additionally a part of community building, they do not exist in separate spheres. This applies across all parent/child codes. This inductive coding method searched to reveal thematic similarities and show trends in the perceptions of what has happened, what is happening, what ought to happen, and what stands in the way. The findings were used to explore the data through the lens of the original research question.

Limitations and Mitigations

Limitations to this methodology include the bias of snowball sampling, as a lack of external validity and generalizability may occur (Parker & Scott, 2019). In Parker and Scott's 2019 overview of snowballing methodology, they identified multiple limitations to the approach. It was shown that there may be limitations to the openness individuals interviewed may have as they risk the passing of information even if semi-identifiable to peers and colleagues. Though this study did not target a sensitive or vulnerable population specifically, it is notable that folks who may have been in less secure positions may have been less likely to be honest regarding perceived barriers. To reduce this risk of incomplete data, the use of a complete anonymity clause would mitigate the issue.

Another potential limitation would have been implicit selection bias as illustrated by the professionals interviewed. This is a known implication of snowballing approach, especially if purposive, the limitations may direct participants to continue recommending key individuals – lacking a spread of participant data (Parker & Scott, 2019). This was avoided however, as shown above, the spread of participants ranged in professions and locations, allowing for a varied perspective approach through data collection.

Chapter 04 : Results and Discussion

Overview

Interview transcriptions were analyzed alongside with brief notes taken during the interviews by the lead researcher. Sections of data were separated for analysis under each of the leading research questions: what *has* happened, what *is* happening, what *ought* to happen, and what are the *barriers* to furthering sustainable development and climate engagement within the Canadian museum sector. Coding for barriers occurred throughout, with analysis for past and present tense touched on – though complete analysis of present barriers for resolution of the hypothetical *ought* is discussed in the *barriers* section of Block 03 (Table 4.0).

Discussion answering each of the questions follows, with thematic sub-divisions based upon the inductive codebook created with NVivo software (Table 5.0). Based upon the data pool of participants, and their expressed sentiments, there are occasional instances in where codes are applicable to multiple demographics – and are discussed as such, however not coded separately. For example, *engagement analysis* was coded to represent both public and professional demographics, as both institutions and provincial associations' professionals spoke to engagement from visitors and museum members in relation to climate programming.

All participants were synthesized in agreement that museums *can and should* participate in climate engagement, engaging in a socio-ecological transition within the sector. Perceived need for this transition is multi-faceted, with a focus on community surpassing other themes overall.

What <u>has</u> happened?

When asked what *has* happened in museums around environmental and climate-related engagement, a number of individual but related themes (including sustainable development, outreach, education, decolonization, and community) emerged that are discussed below.

Sustainable Development

Many participants reflected on past sustainable development efforts in Canadian museums existing in siloed, yet explicit manners. The majority of participants pulling on specific examples, including a handful of explicit, science focused exhibits that contributed to the beginnings of this movement in the 1990s and onwards (MCCN, 2024). Climate-conscious exhibit work was pushing boundaries, most commonly found in science-leaning and natural

history museums. Science-based, environmental lenses were seen to be most commonly used to address education about the climate crisis. Internal operations and systems-thinking approaches were not discussed, with little to no mention of adjusting institutional mechanisms to be more environmentally friendly – though results of Table 6.0 are combined for *has* happened and *is* happening, it shows the overall discussion of sustainable development referenced 63 times in conversations.

Participant 7 spoke of a past exhibit that addressed the greenhouse gas effect and educated viewers on the anthropogenic sources of atmospheric pollutants, in line with the environment-focused exhibits of the time. Participant 3 also talked about an exhibit that directly addressed a sustainable worldview – though noted that this inclusive lens on sustainability was unique for the time at which this exhibit occurred. It aimed to look at underlying values associated with the industrialized world view, "get[ting] people to reflect on their own cultural values, asking challenging questions about consumerism, individualism, and reliance on economic growth as a measure of project progress" (Participant 3). The values of this exhibit from the early turn of 21st century have continued in permanent exhibits that are still up today. Awareness spreading and adaptation within provincial associations was briefly mentioned, as Participant 6 spoke of participating in an initiative that looked at museums and sustainability in the early 2010s.

These individual exhibits and localized movements occurred in similar timing to early publications by Dr. Janes and Dr. Cameron, looking internationally at how museums may establish concepts and create important narratives revolving climate change (Cameron et al., 2012; Janes, 2009). Efforts to avoid the "societal irrelevance" of museums as Dr. Janes coins it, have been pushed by grassroots movements, individuals pushing for climate engagement in through 'bottom-up' initiatives, coupled with a handful of environment-focused exhibits.

Outreach

Outreach within museums spaces was discussed in reference to sustainable programming, advocacy support, engagement analysis, and exhibit visuals. Similar to sustainable development, efforts to directly engage the public with climate education and initiatives were mentioned, however, with a focus on the visual representations of climate change, and enticing narratives encouraging visitors to pay attention to climate change. Programming and advocacy were not spoken about highly in the past tense, with prior restrictions to the extent climate could be

spoken about presented in barriers under *politicization* and *governance* – to be expanded upon later. The primary focus resulted in temporal engagement within exhibits that involved climate change themes and topics. Direct narratives about environmentalism and climate change presented information to the public, though some of the participants found that these visuals were rarely supplemented by programming, or otherwise advocacy support for climate awareness.

Visuals to entice museum visitors were mentioned by Participant 3, as they spoke of an exhibit that employed concepts of time and place, where the viewers were "directly at eye level with the impacts and evidence of/that human industrialization will have on the land". This approach looked to challenge mental perceptions about time and place, reconnecting individuals to the realities that will be faced by coming generations. Real representations of land change were perceived to be effective by participants, however literature shows that without examination of explicit engagement analysis and research, it is difficult to gauge the public's interest and retainment of information (Sutter, 2008). Later published works by McGhie et al. (2020), stand in line with the participants' assertions that visuals and narratives about time and place are proven to be effective in climate engagements within museums.

Education

Education was another theme that emerged when the participants were asked to discuss what has happened in museums in terms of environmental outreach in the past. The majority of participants spoke to the sub-code of *preservation of artifacts*, with past exhibits and structures of programming focusing on education related to a traditional collections approach. Though only 6 references coded to this theme, they were all mentioned within the past tense (Table 6.0). Research as a sub-sect of education was discussed, in past relations, limited to information shared between museum and academic professionals. Education and research are perceived to have played a significant role in furthering involvement of the museum community with the climate crisis, though those involved were primarily professionals, students, researchers, and those pre-disposed to both exposure and interest in the intersection of these fields. Education about climate to the general public was limited in discussion, and overall accessibility of research was poorly perceived.

Education and resources revolving the nexus of climate and museums were mentioned to be inaccessible. Participants shared that though research was developed and shared, there have been clear disjoints between educational resources, and those that have access to them. Notably, "hidden within several links on a webpage" (Participant 8) or perhaps "circulated in print, but no one knew and so no one signed up for them" (Participant 8). This led to only those already inclined to learn about these topics to be interested and therefore knowledgeable through their commitment to find the information. This was spoken about in reference to both academic individuals (Participant 3), and museum professionals under various provincial associations (Participant 4, 6, and 7-8). Inaccessibility and a lack of advertisement resulted in a lack of uptake and interaction with these presented resources and improving environmental sustainability within the associations according to Participants 4, 6, and 8. Interestingly, both *accessible education* and *academic research* have 16 total references – tied for the most significant sub-themes under *education*.

Additionally, it was noted that the majority of resources have been written in an academic tone, and often shared upon academic publication sites, further reducing the ability for a general public to access the breadth of information available. These primarily internally circulated resources were said to be "beneficial and suggestive guides to larger institutions" (Participant 8), though it was noted that volunteer run, and other smaller institutions have not had the capacity, time, nor money to study and implement sustainability programs, adaptations, or suggestions based on the collected research and resources (Participant 4, and 7-8). Overall perceptions showed that accessible education to the public of sustainable development, and museums' roles in the climate crisis was underwhelming, with a handful of exhibitions making grand leaps in the right direction, but for the majority, "a lack of urgency" (Participant 9) on the climate and sustainability created an atmosphere thick with stagnation.

Literature is lacking that would reinforce siloed effects of academic research around museums and climate in Canada; however, the resources that do exist dated to similar times of preliminary exhibits and awareness (mid 1990s - mid 2000s) are written in academic tone, perceivably geared towards audiences of academics and museums professionals.

Decolonization

Participants briefly mentioned decolonization practices within a past tense, of what *has* happened within the Canadian museum sector. The perspectives of the study's research participants showed that prior actions and discussions within the sector prioritized the importance of relationship building between Indigenous communities, communities of the locality, as well as the museum. Active anti-colonial work was not spoken about in a past-tense, though acknowledgment in land reconciliation, and community building towards resiliency were.

Participant 9 spoke of the importance, impact, and inspiration of organization X having for many years worked with local Indigenous communities, to have formed "a trusted, collegial relationship, and the people among each other are actual friends in their community" (Participant 9). Relationship building was discussed at most length. Acknowledgement practices were discussed by the 8/9 participants in Canadian museums' pasts, often as a part of federal governance law and recommendations.

As seen in the literature, the decolonization of museum spaces is integral to sustainability in the sector (Wali & Collins, 2023), though the urgency upon which this has been perceivably occurring in Canada is low, exemplified by gaps in literature, and the lack of comments provided by participants when looking to the past (Table 6.0). Impact of decolonization practices is individual to the community, though the divestment of institutions and acts of anti-colonial practice, including restitution of artifacts may result in more meaningful action than acknowledgements within institutions of the land upon which they operate (Sharp, 2022; Walsh, 2022).

Community

Participants spoke about the importance of community in building supportive networks to work and share resources. Existing coalitions were spoken to - including the Museums for Climate Change Network (MCCN), and the Coalition of Museums for Climate Justice (CMCJ), noting their relevance in discussions of foundational community-building within the sector. Interviewees additionally spoke of the importance of building connection with individuals, in removing barriers of negative perception towards climate change, and how this has been employed in the past. Unspoken about in past tense was the fostering of dialogue, lending to safer spaces and diversification of voices within open conversations about sustainability and the

climate crisis, though this is seen later as something that *ought* to be employed within institutions. Overall, community had 90 thematic references (Table 6.0).

Comments on support networks included Participant 4's remarks that "it was our role to support the work of museums, but also to work collaboratively with the community of museums across the country and the world". Participants 3, 5, and 8 then spoke to the use of individualistic programming, targeting specific demographics and audiences in community building within the public-facing sphere of museums.

These sentiments have been echoed in the literature, including publications from UNESCO (Bokova, 2016), CMCJ (Fast, 2020), ICOM (2019), and CMA (2021), who have all called for resource sharing and the funding of networks for better cooperation and collaboration within heritage sites. The findings of Pop et al. (2019), and Sutton & Robinson (2020) reinforce narratives surrounding the importance of the community-approach in building connection to individuals to engage with topics of climate in museums.

Barriers

Barriers to climate engagement were noted and coded for the past tense and present tense (Figure 1.0), though a further discussion of the barriers' sub-codes may be found in final sections of results (Table 8.0).

In a past tense, participants discussed the topics of poor attendance, critiques based on the politicization of climate as an issue, and the lack of urgency within institutions to act on climate outreach. 6/9 participants spoke of the poor attendance in past climate centric exhibits, due to eco-anxiety, self exclusion from climate topics, or a deep lack of understanding on the topic.

Participant 7 reinforces self-exclusionary behaviors as they explain " Climate exhibitions tend to be not well attended…often people will avoid it. It could be because people are struggling with anxiety and they're worried about climate change, they don't want to put themselves through that extra sort of level of anxiety that they perceive might be there – or it's because they think that it's 'too woke' for them to talk about climate change". Participant 3 is quoted in that there are four times as many museums than there are universities, they go on to say, "the abundance of these institutions increases accessibility to knowledge, but with a bigger presence comes the

associated responsibilities to be present, updated, and engaged…to the world and for the local communities and general public to which the institutions are a part of".

This demonstrates a struggle, as literature shows that museums have a responsibility to make strident efforts to fulfill their 'obligations to society' in the time of climate change, in educating the public – however, the public's perception of this topic resists the impact of this knowledge being expressed or "sinking in" – something echoed in literature (Sutton, 2020). Frustrations regarding the abundance of museums and their need to educate outwardly about climate change is abundant in existing literature, including ICOM publications such as their 34th GA meeting in Kyoto's recommendation list, and the multiple publications of Anderson, Janes, McGhie, and Sutton. The topic of self-exclusion is less present however, and discussion in literature on the politicization of climate change as an issue within Canadian museums is lacking.

What *is* happening?

When analyzing what *is* happening in museums, the same predominant themes emerged and were therefore used for analysis. Specific discussion about the present tense varied, and the ways in which these themes were discussed follows below.

Sustainable Development

Discussions about the present state of Canadian museums proved a sustainability shift is perceived amongst the participants, that is both recently and currently occurring – overall participants shared a hopeful attitude. The emergent themes of internal operations, adaptation work, and awareness spreading were equally spoken about - in contrast to a past tense in where internal operations and awareness spreading were not discussed.

Participants spoke of the transitory nature of sustainable development in Canadian museums, in where climate engagement and environmental awareness is being broken down and distributed to varying topics, weaving climate change through all exhibits, as a fundamental part of museums.

This is in opposition to the prior status of the topic of climate in museums acting as isolated and progressive events, it is "becoming more explicitly woven into the fabric of the goals of museums…across entire collections and curatorial in nature rather than just thinking of it as one topic amongst many" (Participant 7). 5/9 participants spoke explicitly to the use of climate as a

sub-topic within many exhibits, enriching the stories told through various artifacts. This shift towards holistic thinking is in alignment with publications such as Chatter Marks, by Anchorage Museums (2022), sharing academics' opinions on the need for shifting values towards sustainable development and climate awareness within museums.

In evaluating internal operations of museums' buildings, participants shared that many professionals are becoming more aware of their impacts. Including the impact of lighting, air conditioning, fabrication of materials for exhibition displays, the purchasing of new materials and the transportation of items, Participant 5 spoke to this realization that many curatorial professionals are having. They also mentioned that as awareness spreads about internal environmental behaviors, the majority of exhibits still employ rather wasteful practices, calling it "so ironic" to be participating in the purchasing of new technologies and materials for shows about the depletion of the Earth's resources, in an age of the Anthropocene. This paradoxical nature of exhibition work is rarely spoken about in existing literature, though Sutton (2018) and recommendations from ICOM (2023) instill a need for internal sustainability measures to match educational components and responsibilities of the institutions.

Mental shifts amongst communities of museum professionals contribute towards the spreading of "awareness" on climate change and the museums' roles. The importance of the intangible was noted in a perceived shift in attitudes amongst the Canadian museum community by 7/9 participants. Participant 6 reinforced this in saying that "this shift is being really pushed now, moving from museums focusing on the stuff – to focusing on the stories". This shift aligns itself with systems-thinking and holistic approaches echoed in literature, representing a changing of the tides as participants find that museums are becoming less intrinsically trusted, therefore need to update their missions and structures (Cameron et al., 2017).

Outreach

Topics of outreach were thematically significant in what *is* happening in museums, in terms of sustainable programming, advocacy, and engagement. Advocacy is perceived to be increasing, with environmentalist groups such as Extinction Rebellion, and other individual parties that are incorporating museums and galleries into their activism work, museums have been forced to examine what they are standing for, and their responses to certain acts. 4/9 participants spoke to advocacy as an evolving and crucial part of sustainable development for the sector. Participants 3

and 7 asserted that museums are seen to be increasingly present in advocacy in supporting third party groups, and encouraging the use of community spaces (museums) in holding space for difficult discussions, including those revolving climate and social equity in climate justice. Frameworks and guidance for museums asserting themselves as a part of the advocacy scene are lacking for the most part - a part of what many participants perceived to be the over-politicization of climate issues.

Programming is also seen to be expanding, with multi-layered educational programs in place in multiple institutions. Participant 5 spoke of the multiplicity of programs that are intended to target widespread, accessible education surrounding the content of the exhibitions in place. There are "family programs, community programs, school programs, adult programs, and accessibility programs, as well as cultural action plans" (Participant 5). With multi-layered educational programing increasing across Canada, emphasizing scholarly and community programs, literature asserting the responsibilities of museums is seeing its recommendations fulfilled. Programming aligns with the manifesto-style work of McGhie et al., (2019) in discussing how museums may play their part in the development of the SDGs. This includes the provision and support of learning activities in alignment with the SDGs (McGhie et al., 2019), though details of the manners to which outreach has actively made conscious effort to enable cultural participation for all is unknown.

Education

Educational engagement within museums was predominantly discussed in relation to the implementation of holistic programing and research.

Participants spoke to a shift away from regimented teachings, towards systems-thinking approaches. Accessible education is born of this, in the use of multi-medium approaches that diversify teaching methods, for different types of learners. Varied approaches provide education to the communities museums serve, without excluding divergent learners. Participant 6 mentioned the benefits of an integrated, holistic approach to climate education, using varied mediums, reinforced by Participant 3. Sutton's 2018 publication focuses on the alignment of a "systems" approach to climate engagement, and is documented to work more effectively in educational systems (Sutton, 2018). Details on the extent to which accessibility is being prioritised in museums was not specified, though accessibility as a concern was brought up

within educational themes as much as other educational sub-themes such was research were – each with 16 references to the topic (Table 6.0).

The perspectives on research in development with climate action in museums stands that there is a transition to more "crowd sourced initiatives", as Participant 7 discussed, in a diversification from traditional manners of educational research. In part with this, the museums, though still honouring their communal and long-standing missions to preserve and collect, are moving away from the preservation of artifacts as the primary focus. Museum spaces increasingly being used to stimulate conversation, educating through learnt experiences and shared histories – story telling as a central part of this. Within exhibition displays, over half of the participants spoke to stories as the central narrative, rather than a cumulation of facts. Museums are being seen to "take less of a voice of authority and education, and more towards a place of community and engagement" (Participant 4). This perceived shift coincides with the advocating voices for sustainability and climate in museums, incorporating more holistic methodology to education and engagement (Sutton, 2018; Janes, 2023).

Decolonization

Current perspectives on decolonization action within museum spaces was varied, with trust as an emphasized theme, as well as revaluations of collections, and funders shifting priorities towards reconciliation. The perspectives of these movements are those of the professionals interviewed, and do not stand to infer what local communities may have felt or received in terms of impactful and meaningful reconciliation work.

Two thirds of the participants mentioned their institutions or organizations beginning to incorporate the Truth and Reconciliation Commission's (TRC) call to actions into their missions and models, with Participant 9 speaking specifically to relationship building within communities. "We want to have strong communities. That means we want to have trusted relationships with each other, including Indigenous neighbours that have been actively pushed out of communities, and now there are finally efforts made to try to reel them back in. But this is an ongoing process that needs long term determination and honest approaches to good relations." (Participant 9).

4/9 participants then spoke to shifts in priorities of funders, in response to political motivations. Though noted that advancements in recognition and efforts towards decolonization are positive, the majority of participants made it explicitly clear that there are not enough advancements, in

their opinions, urgency is lacking for meaningful change, above recognition work and beginning steps. 5/9 participants spoke to the revaluation of collections and missions that is being encouraged within and amongst museum communities as well. As seen within literature, this is essential within a changing world, with an evolving global landscape pushing the boundaries of what is needed within institutions to maintain perceptions from the public as truthful, knowledgeable, and educational institutions (Anderson, 2022; Janes, 2023).

The Canadian Museums Association in 2022 published a responsive report to the Truth and Reconciliation Commission's Call to Action #67. Though interviewees share opinions that funding priorities are shifting towards Indigenous reconciliation and decolonization in alignment with the report, the actions needed surpass currently existing measures (Danyluck & Mackenzie, 2022). The CMA's report, as with literature from Janes (2023), and Wali & Collins (2023), show that there are differences between decolonization and revaluation works, and active anti-colonial work, that which equitably de-centers conversations about climate, and education about climate from a colonial perspective (Danyluck & MacKenzie, 2022).

Community

In contrast with the community building approach of the past – in where the inclined and interested individuals, partial to climate education and engagement within institutions have been united, there is a shift in focus to what *community* constitutes in modern day institutions. Community remains the most referenced theme, with 90 references total (Table 6.0).

Museums are being seen as elements of communities according to participants, not as static institutions, but as places that have a responsibility to the future. Places that can harness this responsibility through community dialogue, community engagement, and existing as welcoming institutions to everybody in the community. The themes of building community engagement, locality, and inclusivity are significant in present context.

Perspectives on community in museum are unanimously strong, with Participant 4 reinforcing that: "we survive as a community and we serve as a community – for me, museums are primarily service organizations…they have to be outward looking institutions. They have to be responsive. They have to be relevant…to basically take a leadership role in how we see support for climate initiatives across the country". This precise sentiment is shown in the earliest and continuing works of Dr. Janes (2009).

Discussed amongst 8/9 of the participants, negative mental perceptions against climate (to be spoken about more in *barriers*) work against the trust that is held in museums. Working around this necessitates the opening of room for conversations, emotionality, and a connection with the concerns of community members. As Participant 6 puts it "get people to start talking about it before they realize that what they're actually talking about is climate change". Building compassion and understanding is key in this, as shown through the participants' perspectives as well as supporting literature of Dr. Janes, Dr. Sutton, and Dr. Sutter.

The sustainable adaptation progress that has been noted amongst museum associations and institutions to align themselves with progressive mission statements has proven beneficial in fostering community dialogue and connection according to 7/9 participants. However, elements of this approach work against the perceived neutrality and therefore trust that the public has for museums (Hunt, 2021). To regain this trust, museums must foster individualistic relationships with community, as referenced 29 times as the *personal approach* sub-code (Table 6.0).

Barriers

Throughout discussion on the present state of Canadian museums with climate engagement, there was significant talk of the barriers that are stopping further progression and sustainable development in regard to outreach, education, decolonization, and community building. These barriers thematically occupied over one fifth of conversation (Figure 1.0) between transitionary conversations revolving past and present tense. Frustrations were expressed, or barriers stated neutrally. Coding for Block 01 used the entire code book – including barriers, in analyzing themes of current actions, past actions, and the barriers encountered along the way. This allows for an accurate assessment of how thematically significant and relevant barriers are in discussions about climate engagement within museums. Specifics of these current barriers, however, are aligned with barriers to what *ought* to happen. As those currently standing in the way of progression, are also those stopping future progression, further discussion of these will follow in Block 03 (Table 4.0).

Figure 1.0 NVivo Hierarchy Chart using the "number of references to each code" as the defining metric for Block 01, text from transcripts answering the questions what *has* happened and what *is* happening within the Canadian fields of museology. Larger blocks represent more codes, and more discussion revolving that topic, thus a stronger thematic influence in interviews.
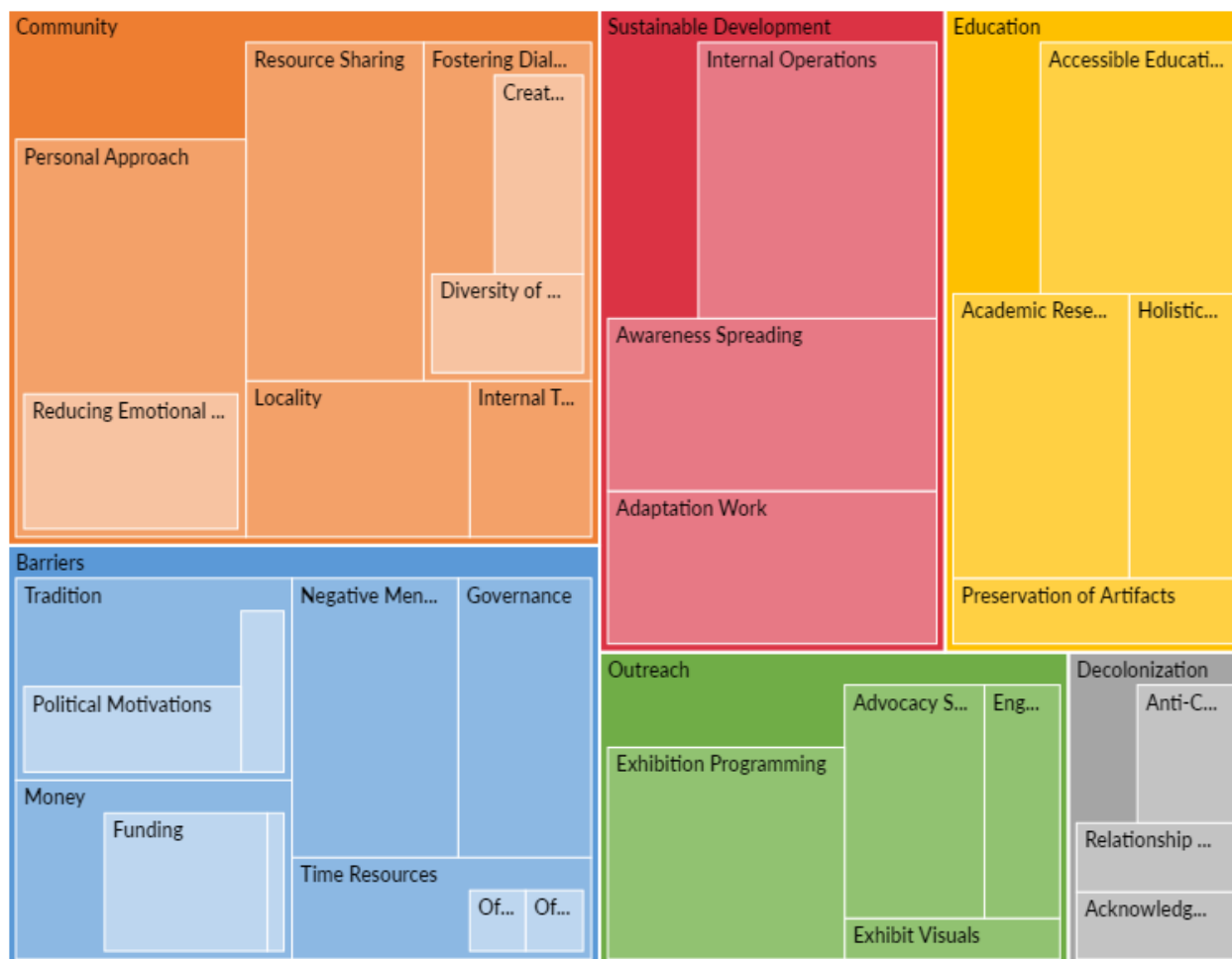
Table 6.0 Codes from Block 01's NVivo Hierarchy Chart, with associated number of references.

Code Name		References
Community		**90**
Personal Approach		29
	Reducing Emotional Distance	11
Resource Sharing		19
Fostering Dialogue		18
	Creation of Safe Spaces	7
	Diversity of Voices	6
Locality		11
Internal Team Building		6

Barriers			71
	Tradition		18
		Politicization	8
		"Professional Standards"	3
	Money		16
		Funding	10
		Of Public	1
	Negative Mental Association		15
	Governance and Government		12
	Time and Energy Resources		10
		Of Individuals	2
		Of Institutions	2
Sustainable Development			63
	Internal Operations		21
	Awareness Spreading		18
	Adaptation Work		16
Education			55
	Accessible Education		16
	Academic Research		16
	Holistic Programming		10
	Preservation of Artifacts		6
Outreach			42
	Exhibition Programing		17
	Advocacy Support		11
	Engagement Analysis		6
	Exhibit Visuals		3
Decolonization			16
	Anti-Colonial Work		5
	Acknowledgements		4
	Relationship Building		4

In analyzing the perspectives of the nine professionals upon what *has* happened, and what *is* happening in Canadian museums, the above results summarize thematic prevalence. Coding biases are implicit to the nature of a thematic, qualitative analysis, at the logistic and rational discretion of the lead researcher. Community was discussed the most, as it was coded as over 26% of the total themes. Following this we see the extent to which barriers were discussed, at 21% of total discussion revolved around the barriers, with close to equal distribution amongst its

subcodes. The following themes of sustainable development (19% of participants), education (17%), outreach (12%), and decolonization (5%) are worth investigation within the context of this thesis. The overall perceptions held that the tide is changing on sustainability in museums, with the ground laid through innovative exhibits and impactful yet siloed approaches in the past. The present holds a great fertility for monumental and meaningful change if appropriate barriers are overcome.

What _ought_ to happen?

When asked what the possible opportunities and futures for museums around environmental and climate-related engagement are, a number of individual but related themes from the developed codebook emerged that are discussed below.

Sustainable Development

The shared perspective amongst interviewees held that Canadian museums should be looking to the future, to sustainability, in self-determined ways, through internal operations and adaptation strategies, as well as in awareness and messaging. Many of the participants shared the opinion that museum institutions should be provided with the resources to self-modify and upgrade internal structures and physical operations. Participants spoke to sustainable development and its subcodes 69 times, as shown in Table 7.0.

In this need for a transition from the status quo, 4/9 participants echoed that the first step to this ought to be a transition to fewer, more explicitly programmed exhibits per year within museums. For travelling exhibits, Participant 2 spoke to the desire to see sustainability policies governing the transportation and care of artifacts – action plans for reducing environmental detriment in order to ensure ethos of exhibits is carried forth.

Many participants spoke to the imbalance of the "10% that faces the public" versus the "90% behind the scenes" (Participant 5) of museums' work. Use of retrofits, and adaptations to the processing of artifacts, climate control (air conditioning), and waste diversion programs within the walls of the museums ought to be implemented to update this "~90%". This rests on the caveat of capacity, especially within smaller, volunteer run institutions. Though as Participant 6 explained, these smaller organizations may already be practicing waste diversion, in recycling of

materials due to financial need – but to the same environmentally beneficial end. Museums need to update their internal structures, to remove the paradoxical potentiality of preaching sustainability, whilst lacking self-modeling on the topic. Elements of this sentiment are expressed amongst the works of Sharp (2022), and within the ICOM's 34th GAM's first resolution *"On sustainability and the implementation of Agenda 2030, Transforming our World"* (Mouliou, 2019).

The majority of participants shared that sustainable development within museums is lacking urgency in its movements, with a need for a shift in mindset away from economic growth, to circular models of thinking. Participant 3 asserts this as they emphasize the need for a paradigmatic shift in thinking, "a willingness within the museum world to recognize sustainability means zero or no growth in economic terms, globally". Dr. Janes explicitly states his opinions on this concept in published works - noting that sustainability in a "modern world" is "can be a myth" (Janes, 2009). Other literature reinforces the need for sustainable development, though infrequently speaks to institutional economic growth.

Additionally, many participants referenced the need for museums to partake in awareness-spreading, with evolving language and tangible action. Participant 4 spoke to the importance of continuous adaptation work, as they note "what are we preserving our past for if we aren't ensuring that we have a future?" Notable changes within global policy stand to reinforce this message, including ICOM's newest definition of museums, that now addresses sustainability (ICOM, 2022). Together the participants stated desire for realistic action – in order to have museums play a part in preserving not only cultural heritage, but social and environmental as well.

Outreach

Participants spoke to the need for outreach opportunities to provide action within museums' sustainability evolvement. A common theme as a part of outreach was exhibition programming. Museums are excellent at displaying, collection, and protecting items in a collection (Participant 3), though it is time to move towards a deeper consideration of how these collections impact people. Participant 5 spoke of the 'three Ps' –"programming, people and place". These avenues for outreach should be implemented into existing programming, attending to a more holistic

approach, incorporating elements of community and advocacy. Global literature echoes these sentiments, though within Canada, this is a transition yet to fully occur.

Participants shared that in programming for communities, exhibits and educational opportunities do not necessarily have to focus the conversation on climate change – depending on the demographics, conversations about quality of life, safety, and stability (as a result of sustainable development and climate action) may resonate more, creating deeper and longer-term impacts (Participant 7). Dr. Sutter's 2008 examination of perspectives on a sustainability exhibit touch on these concepts, though the use of different angles to discuss climate-change as a by product of another topic is not focused on in existing literature – proving this opinion to be a unique 'personalized approach'.

A prevalent theme of advocacy support originated from conversations on outreach, participants demonstrating beliefs that museums should use their spaces for advocacy – encouraging conversations between various stakeholders and public participants to reflect what matters for their communities (Participant 8). Participants of both associations and institutions mentioned the desire from public to "get more for their tax dollars"(Participant 7) – museums should engage with advocacy based upon tangible localities, celebrations, and challenges to the living environment of the present. Modernist approaches to environmental engagement of physical and social contexts are shown in existing literature, in the works of McGhie, Janes, and Fast – which are reflected in many recommendations from museum organizations such as ICOM (2023).

Education

Interviewed professionals shared opinions that while museums should educate, they ought to do so in progressive manners, encompassing systems-thinking approaches, accessibility considerations, and engagement with post-secondary institutions to better understanding of effective and relevant programming for the public. As the third most frequently referenced theme, with 54 mentions (Table 7.0), education is seen to play a large role in furthering the Canadian museum sector's climate engagement.

Going above and beyond the self-fulfilling mission of museums to hold knowledge or art, history, culture, and the natural world – Participant 9 said that museums ought to take on a responsibility to educate the public and have the public enjoy this education. In the "10%" of the museums that faces the public (approximation based on Participant 5), adaptive and integrated

educational displays should incorporate climate engagement into any and all types of different exhibits (Participant 5). Use of a systems-thinking approach to incorporating climate education in museums should occur increasingly within Canada. Education has been one of the foundational pillars of museums, and ought to continue hold up these institutions (Bokova, 2016). Expanding how education is looked at is needed though - the importance of systems thinking in museums is reinforced by literature from Cameron et al. (2012), and Sutton (2018).

Participants additionally shared perspectives that a solutions-oriented communication strategy for climate is best for engagement. In avoiding passing on excess eco-anxiety and climate-grief to viewers, approaching climate change as both a threat, but more importantly a problem with solutions was emphasized by Participant 7. Solutions-oriented approaches in programming may incorporate multiple perspectives, allowing for conversations to be had, and individuals to feel empowered, rather than depressed by the education provided (Participant 7). Literature speaks to the importance of talking about climate, though as individual strategies may vary by institutional capacities, there is a lack of conversation around the specifics of exhibit creation and framing.

Touch, and tangible interaction with materials, especially those centered around climate are perceived to be more impactful for personal and communal legacy building. Included in this were participants' examples of patrons of their local museums contributing to collective exhibits, having personal association with the collection and therefore topic. A part of empowering individuals is the need to have educational materials accessible to all. The use of multi-medium pieces, in where varied types of learners, of all ages and abilities can interact with the materials and therefore messages is an important step forwards for museum education (Participants 2, 3, and 5-9). Expanding on tangibility, participants spoke of the need to prioritize questions over material within museum spaces, using objects as a catalyst for reflection and conversation through touch and experiential knowledge (Participant 3). Though extensive literature covers the need for museums to serve communities, this desire for community to serve itself through museums is rarely touched on.

Decolonization

Themes of decolonization arose frequently during conversation revolving what *ought* to happen within the Canadian Museums sector, with 46 references to the topic (Table 7.0). Predominantly,

the need for anti-colonial work above that of acknowledgement of decolonization, with almost twice the references to the former (Table 7.0).

The largest focus of perceived need for action is to engage with actively anti-colonial work through analysis of narrative voice, creation and fostering of safe and bold spaces that do not exist for white-settlers, and relationship building with Indigenous communities.

Participants 1, 3, 6, and 8 spoke to the progression needed within Canada to follow active practices, Participant 1 stating "going forwards, it's less about decolonizing museums, more about anti-colonial work. What does it mean to not reproduce a colonial ideology or ways of working through settler ideologies?". Expanding spaces such as eco-museums, and community museums are seen to be a necessary part of this, asserted by Participant 3. Literature from Walsh (2022) reinforces this, as does the dissemination of Sharp (2023) - reinforcing Canada-specific responsibilities to decolonize and divest.

Colonialism overlaps the social diversity, social sustainability, and environmental sustainability need. To remove this through work that actively centers anti-colonial leadership and voice is pertinent (Participant 1, 5). Participants shared that, encouraging ways of thinking about resilience and traditional knowledge in relation to historical but also contemporary climate solutions and realities is a needed practice of diversification and strengthening of existing knowledge and educational systems, echoed in existing literature (Wali & Collins, 2023).

Relationship building is a key part of this paradigmatic shift for museums, encouraging better practices amongst all institutions, with use of relational ethics that may allow for the perceived much needed "adaptation to other rhythms" (Participant 2). Building new initiatives, while expanding on existing ones as well ought to be included in the much-needed diversification of these knowledge systems. This is hoped to bring climate messaging as well to a broader audience, and from a trusted place in where cultural perspectives towards climate solutions can be equitably valued and understood (Wali & Collins, 2023).

Community

The most common theme in answering what *ought* the Canadian museum sector do to engage with climate and sustainable development was to engage with *community*. Community codes cumulatively held over double the number of references than any other code or theme (Table

7.0). The growth that is both desired by participants, and seen as a responsibility to the sector through supporting literature shows that prioritizing community and fostering conversations are pathways to sustainable development within museums (Janes, 2023).

Community responsibility was thematically significant, with emphasis on a desired shift for Canadian institutions to equitably serve their communities in new ways. Participant 9 states "Museums have responsibilities in their communities…they're ideally catalysts for conversation…starting uncomfortable conversations that lead people to learn more and learn in a different speed and style from a classroom" (Participant 9). Museums are perfect platforms to depolarize the distinction between climate deniers and acceptors, through a conjoining narrative that centers the stories of individuals and the empowerment of these individuals to change – ultimately bringing together a sense of community (Sutton, 2020).

In connecting with community, all participants spoke about the "personal approach". Targeting individuals in climate engagement through emotionality in exhibits, and relationship building is perceived to be integral to this shift. As much as possible, institutions and organizations should be leading by example, with kindness, decency, and ethical values that show interpersonal relationships are valid – as museums are institutions, but are comprised of collections of peoples (Participant 9). Kindness must be emphasized, with the need to incorporate personal values and experiences into work (Participant 6). Examples of using collaborative story telling programming within climate exhibits show that individuals who are given the chance to reflect on how climate change has impacted them have a higher chance of sustaining this knowledge and spreading it (Participant 6). This personal approach of kindness and fostering dialogue creates opportunities for open forums and conversations with public and activism groups. This ought to be a large focus for Canadian museums' next steps according to Participant 9: "If museums can achieve that by fostering open, honest, truthful, meaningful conversations, offering brave spaces for people offering the ideally in the future safe spaces that we're currently working towards, then we have achieved what we want to achieve.". Though existing literature does not speak to kindness - it may be a great tool for change in coming years, across all sectors.

Under the parental code of *community*, lies internal team building – spoken about explicitly by 8/9 participants. There is need to actualize change through the creation of sustainability teams within museums and institutions. Participants focused on the standardization of individuals

representing and standing up for a sustainable shift within museums, with pressure to hire these individuals, and incentivization for increased funding to do so. According to Participant 1, allocation of resources to build internal communities of sustainability educators and curators is needed to participate in a sustainability shift within the sector meaningfully. Focus on team building for increasing sustainability shifts within museums is not prioritized in literature, however, is greatly important to the individuals of institutions and communities.

Participants additionally shared the importance of locality in community centered thinking. Institutional experiences with climate change were highlighted by Participants 8 and 9, sharing that their communities have looked to museums to facilitate resource sharing and resilience within times of crisis. A part of this need is fulfilled by dialogue fostering, through open forums, platforms, and education for safe conversations amongst academics, professionals, and the public. The BCMA has covered the responsibilities and provided platform for resource sharing within their articles, encouraging accessible language use in climate resources (Hunt, 2021).

Finally, participants spoke to the perceived responsibility of transparency within museums, to uphold trust and integrity in their actions. Prioritization of the inclusion of community, and the adaptation of structures (educational and physical) to be more accessible is seen to be a much-needed step by participants for the Canadian museum sector. Existing literature reinforces these ideas and responsibilities, including the adaptation of internal physical and policy structures, as well as the inclusion of diverse voices (Evans, 2021; Janes, 2023). Policies have been created such as the CMA's climate crisis resolution of 2021, recommending climate actions, though their non-prescriptible nature may be prohibitive to enforcing mandates (Mouliou, 2019; Seggar, 2021).

Figure 2.0 NVivo hierarchy chart using the "number of references to each code" as the defining metric for Block 02, text from transcripts answering the question what *ought to* happen within the Canadian fields of museology. Barriers were omitted and included in Block 03 – discussion on the barriers that are preventing what *ought* to happen.
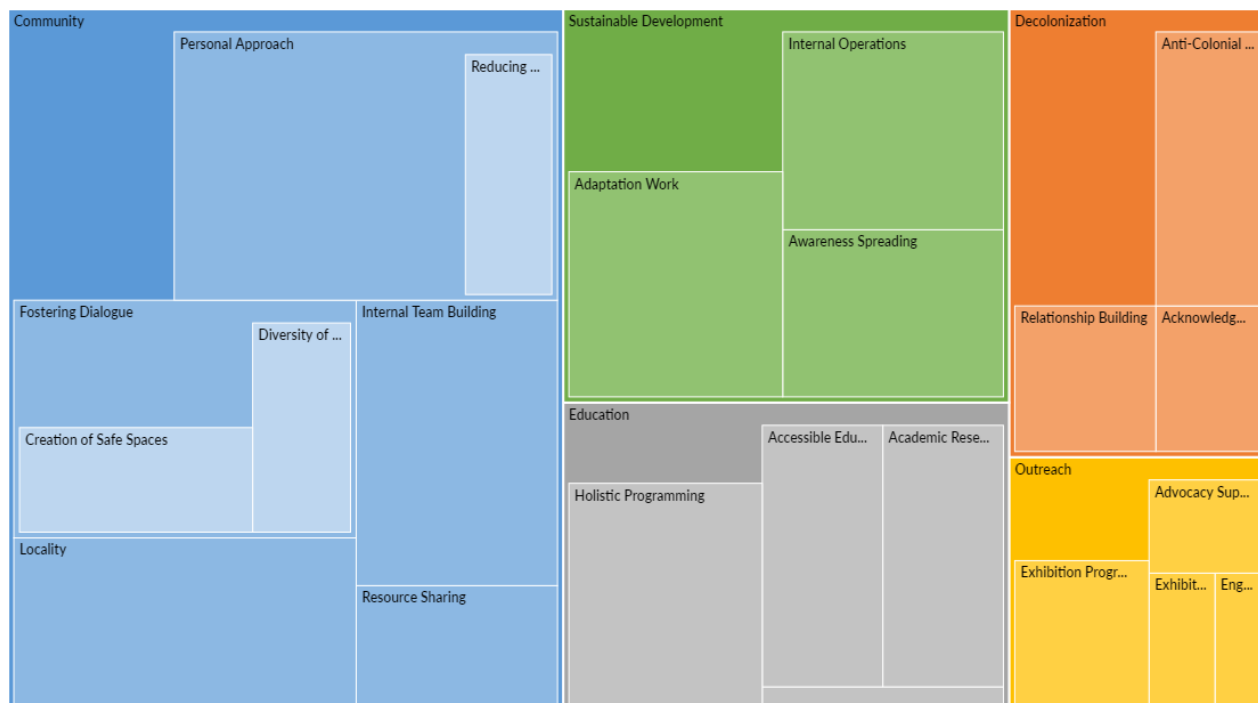

Table 7.0 Codes from Block 02's NVivo hierarchy chart, with associated number of references.

Code Name			References
Community			153
	Personal Approach		43
		Reducing Emotional Distance	10
	Fostering Dialogue		34
		Creation of Safe Spaces	12
		Diversity of Voices	10
	Locality		24
	Internal Team Building		24
	Resource Sharing		10
Sustainable Development			69
	Adaptation Work		21
	Internal Operations		19
	Awareness Spreading		16
Education			54
	Holistic Programming		19
	Academic Research		14
	Accessible Education		14
	Preservation of Artifacts		2
Decolonization			46
	Anti-Colonial Work		13
	Relationship Building		9
	Acknowledgements		7

Outreach	26
Exhibition Programming	9
Advocacy Support	5
Exhibit Visual Elements	4
Engagement Analysis	3

In analyzing what *ought* to happen according to the perspectives of those interviewed, natural barriers to the implementation of these themes arise. Below carries a detailed discussion of these barriers.

What are the <u>barriers</u> to this happening?

Barriers held significant weight in thematic analysis of the conversations held with the nine participants. The "barriers" section of the code book (Table 5.0) was used to code Block 02 & 03 and analyze what is standing in the way of the supposedly obligatory development and shifts. The identification of predominant themes created the codes, with weighted percentage distribution following: tradition (26%), money (25%), time/energy (18%), mental perceptions (16%), and governance (15%) as seen in Table 8.0. Further discussion to each of these inductive codes follows.

Tradition

The theme of tradition stood to be the most frequently mentioned barrier in the Canadian museums sector, with 50 references to the topic (Table 8.0), above time, money, governance, and mentality. The barrier of tradition is broken into two sub-themes: the "professional standard", and politicization based on traditionalist motivations (non-progressive), with approximately equal references under tradition as a whole. Tradition was spoken about in the resistance to progression, including adaptation work and holistic programing, reverting to following of patterns, practices, and policies that uphold antiquated values – in where museums are considered solely places of artifact preservation, and where education remains stagnant. Participant 2 asserts this: "in the DNA of museum is the idea of preserving, right, so they are nothing if not traditional…traditional institutions are nothing if not slow to change". This is connected to the other barriers, particularly governance, as pre-existing standards of work and political input must be dismantled through policy. The works of Swim et al., (2017) and Sutton

et al., (2017) demonstrate the traditionalist nature of museums, reinforcing the need to break through this rigidity in structure for sustainable development.

The 'professional standard' identified was explained in great detail by 3/9 participants. There are standards within the worlds of museology and curatorial work in regard to final displays, and the preparation of the works on display. The use of protective materials, including climate control, non-recyclable protective cases and wrappings, and highly inefficient transportation is a part of a tradition of exhibition display that are traditionally used in Western museums, as asserted by Participant 1, reinforced by literature of Dr. Janes (2022).

As a part of the professional standard, there is an established aesthetic that comprises a clean, well funded, and impressive exhibit space apart from the works and artifacts themselves (Participant 2). Elements of this may consist of new paint, fabricated walls, new cases, PVC and vinyl plaques, and lighting. The materials from these items to design the polished look of a museum's final exhibit were remarked to not have waste management nor diversion programs in place for the majority of exhibits according to the participants. Participant 5 stated "we have to have conversations about which materials are used". Breaking down these aesthetic barriers, encouraging the look of re-use and educating patrons on waste diversion may provide room to move past these rigid barriers of traditionalist appeal. As Participant 1 said "so if those things don't happen, then there's just not going to be a meaningful response to climate change from the arts or museum sector…two big things that really need to change are the labour and the standards". It is noted that there have been past exhibitions within North America and Canada that have made great efforts to combat the waste creation from a "professional standard", including the *Plastic Heart* exhibit of the University of Toronto's Art Center (2021). But as asserted in recent literature such as that by Dr. Sutton, all museums *ought* to work towards incorporation of environmentally conscious practice within their own walls.

Participants additionally spoke to *tradition* acting as a barrier through the politicization of issues. 5/9 participants mentioned issues with loud political minorities, associated with disproportionate amounts of power in the museum spheres. Primarily led by funding priorities, funders contribute greatly to the museums' abilities to act upon issues - including climate change. Participants mentioned funders, as well as protesters, who are members of the public opposed to what they see to be "progressivism" within museum spaces. Participants struggled with the neutrality

museums are seen to possess, though knowing that this is not possible in a society that must move towards progressive change. As Participant 9 states "…museums are not neutral institutions…being silent means consent in a lot of ways, and it means you're existing to agree to the status quo, you're agreeing to oppressive systems". There is resistance to acting against traditionalism, or neutrality, as many issues under the umbrella of sustainability, including climate change have been massively politicized within the museums' sphere according to 8/9 participants interviewed. Participant 8 reinforces this "there's hesitation [from] museums, because you're so afraid of alienating a very loud [political affiliations censored] group by opening your spaces and making them safe for everybody by addressing climate change and more…". Participant 6 spoke directly to this in that "in talking about climate change right now, one of the big things hindering it is the politicization". Climate change has proven to be a difficult, politicized topic with resistance from those who oppose the systems that would address the catastrophic issue.

Museums have not been perceived as active political institutions, they have an established trust from the public in fact DUE to their perceived neutrality (Cameron et al., 2017; Hunt, 2021). The downfall to this, is that when there are initiatives within museums and associations to move towards an actively progressive and inclusive space, the general public may not feel positively about this change. As museums are encouraged to live up to their responsibilities, they are receiving backlash; though simultaneously, they must not remain complacent and silent (Janes, 2022; Sutton, 2018).

Finally, in analyzing who exactly would be making these changes, in institutions where progression is noted, it was perceived that most commonly, the "social justice, and do good initiatives come from younger staff, not necessarily from older, established board members" (Participant 9). Those willing to resist traditional methods of presentation, and the traditional patterns of museums' roles in society are perceived to be those more frequently in precarious positions; less often are these individuals in leadership positions. Thus, those voices of inclusion and diversity that may contribute to sustainable communities and internal team building, are held on precarious strings, as contracted work, and entry-level positions would not place individuals in positions to speak out about systems. In accordance with the sub-code of *community*, internal

team building was discussed, this is integral here in the rejuvenation of the museum sector, with increasing positions for individuals that will institute change and will be empowered to do so.

Money

Financial barriers were spoken about almost as much as tradition, with 48 references to the topic (Table 8.0). All of the participants mentioned funding as a barrier to climate engagement and sustainable development. On top of stressing the need for increased and sustained institutional funding, individual financial barriers were spoken about as well in relation to the accessibility of museum spaces to community and patrons.

The funding of institutions was spoken about highly, with 5/9 Participants mentioning how museums are "chronically underfunded" (Participant 5) or "operating on a shoestring" (Participant 8). There is in part an issue with the amount of money that institutions may access, Participants explaining that with more money in their institutions they may be able to hire more sustainability-centric staff, and work on programs and internal adaptations that would allow for progression with climate engagement. According to 4/9 participants, chronic underfunding has reduced the ability to hire comprehensive teams of curators to specialize in sustainability and climate, as well as preventing the hiring of research teams to understand the most effective and impactful ways to implement sustainable design and programming.

Participants also explicitly expressed a need for reliable, sustainable funders. As participants explained, funders' priorities may become the priorities of the museums. These may not always be climate, thus there isn't much room to self-initiate climate conversations, as tied to the politicization of issues that are non-traditionally covered in museums spaces. When speaking in climate-centric exhibits, despite varying lenses (academic educational, personal actionable, etc), aversions to the extractive nature of the companies that may be funding the exhibitions or gallery spaces is implied. Thus, there is a fine line to walk in self-censorship, and the climate-centric reinterpretation of collections, based upon your funders (Participant 2). Participants shared that various funders and companies have stakes in maintaining the status quo, as deviation may hurt their economic bottom line. It was remarked that several institutions have done an excellent job of interrogating collections in this respect, looking to prioritize educational output and institutional sustainability. However, divestment is not possible for all institutions, as this may result in the closure of their operations. Participant 6 suggests the implementation of guidelines

within provincial associations, or institutionally that may address how far educational exhibits may go in provoking climate engagement and critical thought, while still accepting the monies from funders that are fundamentally anti-ethos of these programs (Participant 6). In adapting, and upkeeping a place of relevancy in the changing time of the Anthropocene, museums are facing pressures to divest (Sharp, 2022) – the difficulty lies in balancing this with the ability to keep doors open to the community.

Personal monies and paywalls as a barrier to access were discussed as participants spoke to prohibitive costs for the public. Access to the exhibits and institutions is rarely free or feasible for all members of the public according to Participant 2 – noting that Canadian museums do not partake in free access to galleries and museums, with the exception of "free days" and a few individual operations. Contrary to this, the CMA has published articles including that of Lea Batara's (2019) that outline ways to overcome prohibitive costs, by providing comprehensive overviews to free entry dates, and pointing out museums that run on a "Pay What You Can (PWYC)" basis. The issue between the perception of professionals and public with these articles may be the accessibility of this information, and the convenience of the options available. Either way – Canadian museums are not universally free, therefore are not accessible to the general public as financial barriers create common barriers to learning, including public access to knowledge about the climate crisis.

Time/Resources

Time and energy resources represents a categorization of barriers that pertain to physical ability to complete tasks due to time constraints. This applies to both the individuals working, as well as the institutions generally.

The 'time barrier' for institutions indicates restrictions to the amount of time that may be dedicated to exhibits, programming, or periphery roles such as install/deinstall and waste management; the institutional timeline to produce a certain number of exhibits per year, in accordance with governing boards, funding needs, and more. Participants mentioned institutional time as a barrier in relation to the rush that occupies exhibitions and educational planning within museums - perhaps preventing the inclusion of certain opportunities such as community building, outreach through programming, sustainable adaptation through waste diversion planning, and more. Institutional time was spoken about by 7/9 participants, demonstrating a

perceived rushed nature to museums, describing its detriment to the holistic implementation of climate and sustainability initiatives.

The time and energy of individuals was discussed, to no fault nor onus of the individual, to be the time and energy capacities of professionals, volunteers, and workers - identified as a barrier to the implementation of sustainable programing and development within museums. Participants mentioned that the capacities of those working are limited, especially given the current Canadian economic "scarcity mindset" that 6/9 participants mentioned. The ability for individuals to spend their working hours completing tasks for their daily responsibilities, and then to spend extra hours completing further readings, and planning efforts for initiatives that go above and beyond the mandate for their institution or role is unrealistic. As put by Participant 9 "It's just not possible [to work towards sustainability in their roles], if you give somebody such limited opportunities to work with, what are they supposed to do?". Capacities of individuals within institutions is not prevalent in literature, though Iannini & Pedretti (2022) speak to the "civic responsibility" of workers and individuals to uphold knowledge sharing in climate conversations.

The time of individuals was also discussed in relation to time as a barrier in incorporating community stories within localities for community institutions (museums). Participant 6 spoke to how they wish to spend the time to be able to talk to people, to take down their stories, to archive these spoken histories. However, this process takes extensive amounts of time. If museums are to act as the community pillars they ought to adapt to become, supporting their patrons and localities – they must create the time for individuals to have their stories heard and recorded (Sutton et al., 2017; Walsh, 2022). This is a part of the shift to a community-centered approach that ought to happen in museums, according to both participants and literature (Sutton, 2018).

Participants paired conversations regarding time constraints with energy constraints. They asserted that it is not only the time and hours it takes to partake in research and program implementation, but the energy to actively work towards the type of sustainable progression one may WANT to see in their institution that presents as a perceived barrier.

Institutional energy presents as funding and money, but personal energy accounts for finances as well as the mental ability and will to initiate and participate in change. Participant 9 spoke extensively about the barrier this lack of energy provides to bottom-up, or 'grassroots' change. They believe that all individuals hold the responsibility to actively educate and work towards

decolonization, reconciliation, sustainable development, and progression. The working level professionals' abilities to produce academic research and advocate for policy change in institutions to include sustainability mandates, waste diversion programs, engagement analyses, and more is limited by individual capacities – therefore requiring institutional support, according to 4/9 participants. Participant 6 relayed discussions they have had for many years, with colleagues across the country who anecdotally share the frustration with "the lack of this kind (sustainability in museums) of research being down at the university level…there's not a lot of time for us (working professionals) to research and publish and there's not a lot of resources for people working within the museum field to work with" (Participant 6). Conversations with participants showed strong ties between energy barriers and funding barriers, with Participant 9 stating that "there is no decent, sustainable funding for institutions to do their work properly, which is all of their work, which includes the more ambitious work perhaps, of climate action and social justice as well". Civic responsibility is once again pertinent here, in relation to the existing literature of Iannini & Pedretti (2022), though balanced with individualistic capacities. Individuals' needs to pay their bills, support individual lives, and participate in community may be priorities over initiatives above and beyond that which is required in the workplace. Unfortunately, this means that though passionate individuals and interested parties may be able to brainstorm and initiate some movements, the most impact in Canadian museums transitioning to a greener, more sustainable future is to implement institutional policy, and adjust funding to build teams that are provided with equitable resources to enact this transition on the ground.

Governance

Participants identified the barrier of *governance* when discussing climate in the Canadian museum sector. Noted by 5/9 participants, there is a large scope of variation amongst Canadian museums, including small volunteer-run operations, and large museums of academic and governmental association.

Participants spoke to the necessity of good governance, and equitable governance within associations or museums, encouraging these governing bodies to look at not only the physical, but the social, cultural, economic, and political environments of work (Participant 6). The multi-faceted reputation of governance was noted to be important, as Participant 5 describes "ethical behavior, good governance, good practices, the way you use public funds, how your lead/face of

the operation behaves, and if your programming is relevant" are contributing factors to reputation (Participant 5). If one of these things starts to break down, your reputation breaks down (Participant 5). Along with reputation comes frequented ideas of tradition, that is difficult to resist in museums that are colonial in nature, often adopting partiality to the governmental party in power (Participant 7). However, no matter what government is in power, the governance will likely be neoliberal in its ideas (Participant 7). Participant 9 spoke about their frustrations with governance structures, as these decision makers "are not showing us the urgency of the climate crisis…and the National Museum policy is extremely outdated from the 90s, and even then, held only small incremental changes from the original in the 70s" (Participant 9). Participants mentioned that a transition to community-oriented structures, such as eco-museums may allow for these frustrations of urgency and affiliations to lessen, by giving the community agency over their spaces, as reinforced by the works of Walsh (2022), and addition McGhie's publication on the SDGs in museums (2019).

Additionally, inconsistencies with global and Canadian governance laws were noted as frustrations, and barriers to anti-colonial work; Participant 6 asserts this in describing the United Nations' Declaration on the Rights for Indigenous Peoples (UNDRIP) recommendations and promotions to having an Indigenous advisory committee, operating over and above the board. Non-profit law does not allow for this in Canada however, so it has taken aboard the Canadian Museums Association in 2022 for, in accordance with the Truth and reconciliation Commission's call to action #67 that UNDRIP be implemented through the CMA. As stated in the CMA's report, it falls onto settlers [particularly those of governing bodies] "to reconcile themselves to the true history of where institutions like museums have caused harm, and address this in ways identified by Indigenous Peoples" (Danyluk & MacKenzie, 2022). Individual, institutional ecosystems each preserve their own traditions, culture, and ways of doing (Participant 2). Within these ecosystems, participants perceived the need for outstanding governance to transparently address goals and objectives, incorporating standards for their institutions, in accordance with higher recommendations to implement advisory committees, research educators, and sustainable programming development to bring all institutions up to a modern, relevant status.

Policy and governance are discussed at length in existing literature, with these avenues of tangible change, focused upon for museums to uphold their societal responsibilities (Janes, 2009-2023). Literature shows that it is critical for decision makers within institutions to empower and uplift individuals initiating grassroots movements, and well as hold their own sets of policy to ensure that museums are educating the public in accessible, and modern manners (Anderson, 2022).

Negative Mental Perceptions

Throughout all interviews, the barrier of perception was described and reinforced. Prejudices, pre-conceptions, and a negative mental outlook on the topics of climate change and sustainable development were consistently described to be a barrier in actualizing climate engagement with the public, spanning demographics and communities across the museum sector. The sub-theme was referenced 29 times (Table 8.0).

The majority of participants discussed the gravity of the topic, as something that is associated to anxiety and grief processing, with a focus on the need to empower individuals regarding climate rather than solely inform them. Participant 3 states "I would never downplay the importance of information, its just that sometimes by itself it doesn't do much", Participant 4 reinforces this in speaking to the message of informationally heavy exhibits on climate "…and the sky is falling, and you all have a responsibility to stop the sky from falling – people don't feel empowered by this, they simply feel weighted". The mental weight of dire circumstances is preventative to impactful communication and programming, though if this is acknowledged, as McGhie et al. (2020) disseminated, there is room for museums to empower individuals to assist personal or collective responses to climate change (McGhie et al., 2020).

Barriers were a large part of overall conversation, with interviewees speaking of the barriers to implementation of climate engagement in museum spaces collectively more than any other individual theme identified. The identification of predominant barrier themes: money, tradition, time, governance, and mental perceptions outline the areas in which supplementary work and attention may be provided, in order to surpass the barriers and achieve the needed societal and scientific relevance within museum spaces (Janes, 2023).

Figure 3.0 NVivo hierarchy chart using the "number of references to each code" as the defining metric for Block 03, text from transcripts answering the question what *barriers* obstacle the progression that can and *should* happen within the Canadian fields of museology.
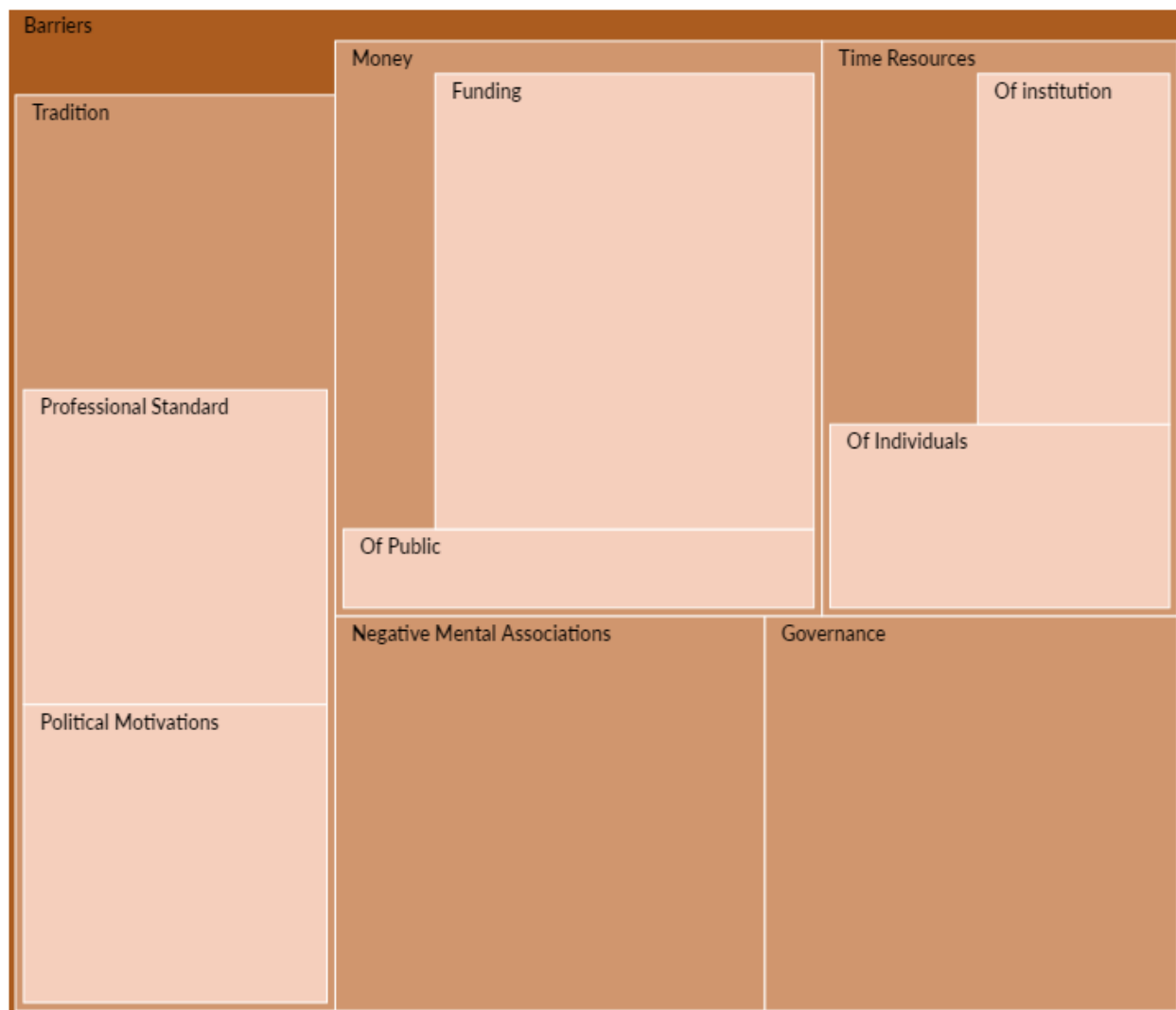

Table 8.0 Barrier codes from Block 03's hierarchy chart, with associated number of references.

Code Name			References
Barriers			193
	Tradition		50
		"Professional Standards"	18
		Politicization and Motivations	17
	Money		48
		Funding	33
		Public	7
	Time and Energy Resources		35
		Of Institutions	13
		Of Individuals	12
	Negative Mental Perceptions		29
	Governance and Government		28

Chapter 05 : Conclusion and Recommendations

Significant Findings of the Results

In returning to the original questions asked within this study, we look to answer what *has* happened, what *is* happening, what *ought* to happen, and what are the *barriers* to evolving sustainable development and climate engagement within the Canadian museum sector. Throughout the results, the most thematically significant element is community. Perceptions hold that museums are service organizations, with responsibilities and opportunities unique to their institutional capacities, in engaging public and stakeholders of varied backgrounds in conversations around climate. This engagement with communities is seen as a needed process for urgent climate awareness and adaptation within the 21st century. Thematic findings confirm perspectives within existing literature from pivotal voices such as Anderson (2022), Cameron et al.(2017), McGhie (2018), Janes (2023) and Sutton (2018).

The collective perceptions of the participants on what *has* happened reveals that museums are perceived to have been, and continue to be institutions of knowledge, preservation, and education. Participants shared that the museums they work with have continued to uphold these roles, and within the 21st century have grown closer in global and international communities, through resource sharing and conference amongst provincial associations and coalitions for like minded individuals such as CMCJ and MCCN.

Within the present tense, what *is* happening is met with similar thematic similarities, though including significant themes of decolonization, and the politicization of climate issues. Participants highlighted the need for funding priorities to demonstrate commitment to action with the Truth and Reconciliation Commission's Calls to Action, including that of #67. Relationship building between institution and community is a priority, for Indigenous and non-Indigenous communities. Public perception towards museums is additionally changing according to participants, with more members of the public holding distrust towards these institutions. Desire is present for institutional accountability, and demanding of more from public tax dollars. Climate change is also being spoken about more, as it is being more frequently woven into the fabrication of exhibits, following a holistic approach. It is noted that the politicization and

polarization of climate change as an issue creates a social environment in which it is difficult to institutionally act with urgency.

Looking to the future, participants reinforced a need for change, for museums to engage with communities, reforming museums into third spaces that work to educate, preserve, and foster dialogue. Diversification of programming and outreach, prioritizing accessible education, and engagement with actively anti-colonial practices are thematically most significant for future responsibilities of Canadian museums. Participants shared that with growing public demand, they believe Canadian museums ought to adapt and develop their internal structures (including the physical, governing, and social) and create more community outreach. Transparency throughout this is necessary, as the Canadian museum sector ought to grow to a place of trusted knowledge and safe spaces for all topics, including climate change.

In examining the *barriers* to these sustainable adaptation efforts, thematic significance emphasized the obstacles of tradition, money, and time. A transition away from the traditionalist line of thinking in where museums operate solely to serve collections, preservation, and patron education on artifact is needed. Acceptance for less environmentally impactful presentation methodology is a part of this, as well as fundamentally shifting values and missions to be more inclusive. Funding, importantly ethical and sustainable funding are large issues for a green transition for the museum sector, divestment as a controversial yet integral part of removing barriers to climate engagement within institutions. In addition to corporate funding, the accessibility of institutions is limited by paywalls for visitors. The capacities of institutions and individuals presented barriers to presenting engaging, educational exhibits with explicitly holistic and appropriately climate-considering programming. The barrier of "negative mental perceptions" loops into this narrative, presenting an issue between the need to spend more time individually and emotionally connecting with visitors to engage them with crucial subject matter, and the limits of the workers/volunteers to do so. The final thematic barrier is governance, with data showing repeatedly expressed desire for sustainable, equitable governance that allows for allocation of resources to develop internal teams and connect with community, on climate change and other issues.

What we don't know

This thesis aims to better understand what *has* happened, what *is* happening, what *ought* to happen, and what are the *barriers* to evolving sustainable development and climate engagement within the Canadian museum sector. While the results shine light on various themes, important for scholars and practitioners to consider, the thesis also identifies gaps in knowledge. This study lacks an Indigenous approach and perspective in terms of the impact, value, effectiveness, and barriers in transitioning museums to community spaces and carrying forth anti-colonial work. Further, it is beyond the scope of the thesis to gain the general public's opinions on the role of museums in climate engagement, as institutions that can provide third spaces, and as educational operations. Such knowledge is relevant in the context of those who would use these spaces, in advancement of climate engagement.

Further Areas for Study

This thesis reveals areas of further research that may build on the work provided. Recommendations for these areas of further study in the Canadian museum sector include:

- Intersectionality of interdisciplinary spaces
- Accessibility
- Feasibility of divestment

Furthering understanding of the social needs within the Canadian museum sector may frame community-centric recommendations more justly, with recommendations informed by the members of the communities' populus. Opportunities for rich, new studies looks beyond developing environmental consciousness, and onwards to equity, diversity, justice, and accessibility needs within the heritage sector – including the following:

- Interdisciplinary Spaces: Further studies examining the efficacy of varied institutional spaces could provide crucial information to the sector. Examinations of the differences, strength, weaknesses, and potential for integration between art spaces, science centres, history museums, and room for the intermeshing of these areas within Canada. Work may build off of UNESCO's 2015 *Recommendation concerning the Protection and Promotion of Museums and Collections, their Diversity, and their role in Society* (Bokova, 2016).
- Accessibility: Examination of the bridges between multi-disciplinary spaces, and furthering of accessibility within museums. Further research could examine the

accessibility of the information museums may provide communities, as discussed in this study, revolving climate, and other issues. The patron costs, physical accessibility, and social accessibility of institutions such as galleries and museums may be analyzed to fill a gap left in this research. Briefly discussed in barriers, accessibility has room to be developed upon, contributing to avenues for the most effective adaptations within museum outreach programs and structures.

- Divestment: A discussion on the feasibility and need for divestment within museum sectors may be of interest to researchers looking to advance the works of this study. Identified by participants as a large barrier, access to reliable, sustainable funding is a current issue to climate and sustainability engagement within these spaces. Building on the works of Sharp (2022), divestment in the Canadian museum sector is a topic with much room for investigation.

Implications of this Research for Researchers and Practitioners

Significant results from this study - in conjunction with previously existing literature - hold implications for practitioners within the Canadian museum sector. Specific suggestions based upon participant recommendations use connections between various codes (including barriers) and sub-codes to deduce solution-based approaches, as shown below. Recommendations may be relevant for practitioners, museum professionals, governing bodies of Canadian museums, and interested academics looking to advocate for a greener heritage sector in Canada. This list is non-comprehensive, though may be of use to highlight areas of improvement for Canadian museums, dependant upon the capacities of institutions and associations.

Use of holistic and systems-thinking approaches within operations and outreach.

- Embracing sustainable leadership, Canadian museums are encouraged to break down siloed attitudes of their educational platforms, fostering a holistic sense of understanding and purpose (Newell et al., 2017). Embracing innovative thinking, and encouraging the cross-pollination between subject matter in exhibits and programming will create opportunities to connect community with the subject matter, realizing the interconnected nature of the natural and man-made world (Davis, 2022; Participant 9).

Use of solutions-oriented approach to empower individual action.

- In efforts to circumvent the *negative mental perception* as a presented barrier to climate engagement in Canadian museums, employing a positive emotion along with

responsibilities to the realities of climate change may empower individuals more so than the sole responsibilities.

- The coupling of hope and responsibility may reduce emotional displacement without making the audience feel dejected and shutdown with guilt. Uplifting community by providing support to make patrons feel capable to an active responsibility, as well as encouraging them to return to the institution (Participant 8).

Center community in communication approaches.

- To reduce often-siloed effects of museums' resource creation - employing creative, community-centered outreach programming may encourage more members of the public to attend the institutions, reducing the frequency of individuals self-excluding from climate education. Creative, and bold communication strategies may additionally provide the public, and other members of the museum community with the opportunity to learn from one another, addressing a disjoint between existing resources and demand for them.

Hold fewer exhibits per year.

- In efforts to improve the "human ecology" of museums (Participant 3), it is suggested to reduce the number of exhibitions that are held each year. Individual and institutional time/energy may be used towards fewer exhibitions, though with each incorporating more elaborate, and therefore, potentially impactful programming. This resists the barriers of time and energy being faulted for a lack of climate/sustainability incorporation into exhibit designs and educational outcomes. Part of the evolving responsibilities of museums post-COVID (Sutton, 2020), may encapsulate resisting traditionalist patterns of fast turn over, and eye-catching exhibits; redirection of energies into the holistic approach to exhibition creation and curation, and the programming and outreach surrounding them.

Incorporate student programming at a post-secondary level to supplement institutional research and accomplish programming objectives.

- The use of post-secondary students in internships, co-ops, and research projects presents an equal opportunity for institutions and students to benefit. Supporting internal-team building needs for sustainable curation and management within museums, the use of post-secondary level learnings may bridge generational gaps, encourage more climate-conscious students to get involved with the heritage sector, and for research to be accomplished as a part of an academic schedule, reducing the individual onus from working professionals within the field.

- Encourages connection with the public sphere, as students may have more capacity to work with patrons to discover what methods are most effective in communicating the urgency of climate adaptation through the museum, and discover what the needs of community are.

Incorporate multi-medium displays for more accessible education opportunities.

- Encouraged and increased use of multi-medium displays may allow for individuals to connect to subject matter more universally. Coupling the integration of climate themes into more exhibits, with use of varied mediums, there is great potential for climate engagement and increased accessibility.

Encourage the revaluation amongst museums and associations to assess their missions.

- Encouraging brave, bold conversations amongst museum professionals, governing, and advocacy bodies to truly assess the purpose of their institutions within the context of the changing world, and the climate crisis. Showing compassion to members and concerns, and addressing the values and missions of associations and institutions in order to regulate the operations of such. Discussions such as this may lead to rethinking of certain practices, and provide fertile ground for initiative work (Janes, 2009; Participant 2 and 9)

Framing of multi-faceted changes towards the financial and collections-based, removing the politicization of climate as a topic.

- Reducing environmental impact of collections care, as the primary goal for many institutions may take the form of financial incentives. Taking inspiration from small, underfunded museums, the opportunity to reduce, reuse, and recycle materials is additionally cost effective, especially with funding as a frequently identified barrier for museum institutions. The care of collections is often carbon-intensive, as is the operation of larger museum institutions, looking to areas to reduce this may save cost, and lessen environmental impact as well (Participant 4). This allows institutions to additionally remove aspects of the paradoxical nature identified by participants in where climate-conscious exhibits are displayed in environmentally detrimental manners. Engaging with this "second nature" lens may appeal to the financial sides of museum governance, while reducing carbon emissions as well, encouraging transparency within the institution to community (Participant 7). Choices made may benefit individuals, institutions, collections, and environments (Participant 9).

- The use of higher quality, more ecologically friendly materials may additionally be far safer for preservation purposes – once again framing environmental care as a second effect of the initial purpose (collections care) as pointed out by Participants 1, 6, and 7.

Necessitate transparency and accountability amongst institutions, towards federal, provincial, and global standards/recommendations for sustainable development.

- Encourage the transparent updates regarding progress on the varied recommendation-based policies from provincial and global organizations on sustainable development within museums (Hunt, 2021; ICOM, 2023). Transparency mandates to governing bodies of Canadian museums may provide public discourse and pressure – increasing urgency and pushing the attitude shift within capable institutions to engage with sustainability in accordance with these global standards (Participant 5).

Flexibility within governing bodies to empower "bottom-up" initiatives, as well as instituting "top-down" sustainability policies.

- Accepting a combination of grassroots initiatives, as well as needed institutional policy creation may allow for all voices to be heard within the museum sector, incorporating the concerns of community, in with those of other stakeholders such as funders. With upper levels of governance on board to help facilitate the percolation of ideas from the "bottom" there is a reduced onus on individuals to over-work themselves attempting to enact change, and more room for meaningful change, in where allocation of resources, etc. may build powerful legacies of progress and climate adaptation.

Recommendations for the Canadian Museum Sector

Canadian museums have begun climate engagement work, yet more must be done to inform the public and meaningfully impact the sector. As a more inclusionary and overall summary of this research, Canadian museums should:

- Institute detailed and nuanced institutional policies on sustainable funding and adaptations, publicly transparent in their operations.
- Employ more sustainability focused curation positions, with overlap in hiring, to maximize resource efficiency and opportunities for legacy building.
- Expand medium variation within exhibits to increase accessibility for public engagement, incorporating sustainability and decolonial pedagogy.

- Increase public resource allocation to Eco-Museums and alike community-centric programs to improve social, cultural, and environmental sustainability.
- Employ equitable governance in all institutions to remove political biases, and allow for transparency and progressiveness to serve the public.
- Prescribe nuanced recommendations and policies for museum-type institutions, increasing actionability and accountability towards a sustainable future.

Final Remarks

Concluding this research, we look to the Canadian museum sector, to enable sustainability and climate engagement within their spaces, resolving themselves as key institutional members of the community. Encouraging sustainability in leadership, we hope to see more team building opportunities, with an adaptive approach to outreach, and considerations for accessibility and emotionality of patrons. The Canadian Museum sector has opportunity and responsibility to acquiesce to globally progressive standards for cultural and educational engagement with the climate crisis, and further its own relevancy in a national and global context. We are excited for what is to come.

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