ART AND CLIMATE CHANGE ADAPTATION

HOW ADAPTATION POLICIES ON PRINCE EDWARD ISLAND CAN BE SUPPORTED BY ARTISTIC PROCESSES

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Abstract

Climate change and climate change adaptation are increasingly represented in the arts sector. In addition to its artistic value, the resulting 'climate art' can perform a variety of functions, such as articulating emotions and translating complex information. In the past three decades, there have been several initiatives that, in recognition of the potential of climate art, bring artists and scientists together for collaboration. However, policymaking for climate change and adaptation does not utilise the potential of climate art. In this paper, I develop a concept for the integration of artistic processes into adaptation policymaking on Prince Edward Island in Canada. The research draws on qualitative data, gathered through in-depth interviews with artists, cultural experts and climate change adaptation policymakers on Prince Edward Island. I propose a concept for the integration of art into adaptation policymaking, in which an artist-in-residence position is established at the relevant governmental department to facilitate collaboration and community-input.

Content

Introduction

Climate change has been a source of inspiration for artists around the world (Volpe, 2018). Since the 1990's there have been various projects, such as Artcircolo & Cape Farewell, to bring scientists and artists together to work on climate change (Giannachi, 2012; Volpe, 2018). Little research has been conducted into the results of these art-science collaborations or into climate art in general. The limited research that is available on the topic is often focused on the potential that climate art has for stimulating public engagement (Bentz, 2020; Tyszczuk & Smith, 2018). Other potential benefits of climate art, such as the role it can play in stimulating creative thinking for adaptation solutions, have received even less attention (Tyszczuk & Smith, 2018). Climate art is so far not being used to its full potential, in particular, its potential to strengthen climate change adaptation policies (Tyszczuk & Smith, 2018). The research that establishes the potential of art rarely alludes to how that potential can be used in practice. In general, examples on the integration of art into policies or the use of art to accomplish goals beyond artistic expression are not readily available.

The premise of this research is that art can be more than a visual aid in policy communication. Art can strengthen the policies themselves by stimulating creative and transformative thinking. The research is specifically focused on Prince Edward Island (PEI) in Canada. PEI is starting to experience climate change and, as an island, it is particularly at risk of sea level rise (Fenech et al., 2017). Because the island is actively looking for climate change adaptation solutions, a building is currently being built to house Canadian Centre for Climate Change and Adaptation (UPEI, n.d.). The island also has a vibrant artistic community that finds inspiration in the land- and seascapes. The goal of this research was to find ways to fully harness the arts and artistic processes for climate change adaptation policy at various levels of government on PEI. In order to do so, the research has identified what potential is ascribed to art; existing concerns about climate change and adaptation policies on PEI; and challenges to adaptation policy-development on PEI.

The research started with a literature review on climate change art, art in policy and climate change adaptation. Interviews were conducted with policy makers and artists aimed at finding common ground and opportunities for artists to contribute to the creation of climate change adaptation policies. Insight was gained in the work process, approach, and intent of artists and policy-makers working on climate change (adaptation). This insight was needed to create a framework for integrating art into Prince Edward Island's climate change adaptation policies that takes into account what is workable for both sides.

Literature review

Art & climate change science

Anthropogenic climate change is not solely a scientific issue, but a political, social, and cultural issue as well (Knebusch, 2008; Yusoff & Gabrys, 2011). Consequently climate data models cannot be considered sufficient to fully understand the issue. Attention for climate change is growing in a variety of scientific disciplines, including political and social sciences (Knebusch, 2008; Yusoff & Gabrys, 2011).

There is also increasing attention for climate change in the contemporary art scene (Knebusch, 2008; Volpe, 2018). Many artists and artist networks such as Imagine 2020 Art & Ecology and the Artists and Climate Change website have worked on the topic (Giannachi, 2012; Volpe, 2018). Projects and organisations such as Cape Farewell, Tipping Point and Artcircolo have brought scientists and artists together to work on climate change (Burke, Ockwell & Whitmarsh, 2018; Giannachi, 2012; Knebusch, 2008; Volpe, 2018).

Cape Farewell is one example of bringing artists and scientists together. Its goal was to communicate climate change realities through art (Giannachi, 2012). In Cape Farewell's expeditions to Spitzbergen, artists engage with scientists and derive artistic inspiration from exposure to the world's climate tipping points in the hopes that they are inspired to create art (Burke, Ockwell & Whitmarsh, 2018; Giannachi, 2012; Knebusch, 2008). The expeditions have led to publications, a film, and an educational packet called Extreme Environments (Giannachi, 2012).

The German art collective Artcircolo has a similar approach of bringing artists, technologists, curators, and scientists together to work on a common theme, specifically 'water'. Artcircolo develops transdisciplinary research, start dialogue with the general public, and create artworks. In addition, they also use business methodologies to create products that respond to climate change, such as *Quellsystems* by Peter Trautwein, which generate drinking water (Giannachi, 2012). Artwork that has been created as part of Artcircolo and Cape Farewell activities allows people to experience remote occurrences and long-term processes, such as the melting of a glacier in Kalle Laar's *Calling the Glacier*. Through different mediums artists represent the unfolding of environmental catastrophe, making it accessible to a diverse and distributed audience (Giannachi, 2012).

Potential of climate art

Engagement

The most used argument for the value of climate change art, is about the role it can play in climate change engagement. Research into public perceptions of climate change has shown significant variation in understanding of the threat it poses, which complicates the establishment of effective strategies to stimulate engagement (Yusoff & Gabrys, 2011). Art can move beyond what is a correct interpretation of 'facts', and stimulate the imagination and perspective-taking. In doing so, it can change perceptions and promote engagement. By accessing the imagination, people can envision different scenarios and what is needed to create a desirable future (Bentz, 2020; Yusoff & Gabrys, 2011). The development of scenarios in climate science serves to model the possible climate change trajectories. Scenario work can be made more tangible by the arts by envisioning the various social, cultural and political ramifications of each scenario (Yusoff & Gabrys, 2011).

While art can support a critical reflection on how we perceive and relate to climate change, restricting it to illustrate scientific discoveries limits its potential. A collaboration

between art and science can create an immersive experience that provokes an emotional response, something which science has struggled to achieve. By deconstructing the way one normally perceives the issue, art can reveal new possibilities (Knebusch, 2008). In addition, art can reveal and challenge people's preconceived notions, and affect the way they experience and construct the world around them (Burke, Ockwell & Whitmarsh, 2018).

As noted before, art can lead to an emotional response, but there has been criticism that climate change imagery has become clichéd and tiresome (Burke, Ockwell & Whitmarsh, 2018; Miles, 2010; Yusoff & Gabrys, 2011). Miles (2010) wondered if the meaning of art is too compartmentalized to lead to long term engagement, comparing it to movies about climate change that are mainly seen as entertainment. There have been concerns that catastrophic representations of climate change, and messages of fear, lead to apathy rather than engagement. Confrontation with the uncertainties of climate change, worst-case scenarios, without accessible solutions can lead to a sense of hopelessness (Bentz, 2020; Miles, 2010; Norgaard, 2011). Yet, catastrophism can lead to engagement by creating concern. According to Yusoff and Gabrys (2011), the doom-laden narrative in climate change fiction, if done well, allows people to move through emotional challenges and difficult choices alongside the protagonist. The arts are able to work with the uncertainties of climate change by envisioning multiple scenarios and the potential difficult choices that lie in our future. In some ways, by working with a variety of scenarios, art can help people rehearse for possible futures (Tyszczuk & Smith, 2018; Yusoff & Gabrys, 2011).

The power that climate art has for engagement, lies in allowing us to experience the intangible facts of climate change science. While the power of the experience is present in all artistic mediums, it could be stronger in the embodied experiences of dance and theatre. Through the use of the body we experience the work differently and it becomes easier to connect to the subject matter (Bentz, 2020). The same can be said for audio-visual installation which can turn data into an immersive physical experience, deepening the perception of climate change (Knebush, 2008). By allowing us to experience different scenarios, art can provoke a cognitive response, as well as establish a personal emotional connection (Bentz, 2020).

Burke, Ockwell and Whitmarsh (2018) note that, to stimulate engagement, climate art needs to be easily accessible. When the artwork is integrated into the local environment, it can draw in visitors that might not go to an exhibition deliberately, and thus affect more people. The impact can be even greater when the subject matter is locally relevant, in other words, by representing the local impact of climate change (Burke, Ockwell & Whitmarsh, 2018).

Participatory art

There is great variety in the subject matter of climate art, ranging from apocalyptic to hopeful, and the subject can be explicit or implicit. These differences can lead to different emotional responses (Volpe, 2018; Yusoff & Gabrys, 2011). Depending on the subject matter, art has the potential to transform negative emotions to create a sense of agency, hope and solidarity. This is especially the case when the work is connected to possible solutions and practical opportunities for engagement. For this purpose, participatory art is particularly relevant, because it allows participants to experiment with solutions and become familiar with the possibilities. Participatory art can be a source of empowerment and help people to overcome the negative emotions related to climate change (Bentz, 2020).

Another strength of participatory art is that it can facilitate dialogue and bring together people from different sectors, disciplines and backgrounds. By engaging with climate change in a creative manner and in a diverse group, new insights can be gained and expressed (Bentz, 2020). Participatory art can establish more direct linkages between people, climate art, and the local context in which they make sense of climate change (Burke, Ockwell & Whitmarsh, 2018). By bringing a variety of people together, working with local context, and possibly collaborating with institutional and governmental structures, participatory art can serve as a catalyst for local action (Miles, 2010). Similarly, participatory art can have implications for a more democratically legitimate knowledge production and decision-making in the context of scientific uncertainty (Burke, Ockwell & Whitmarsh, 2018).

Creative thinking

While previous research into climate change art has been focused on its potential for engagement, it is another, under-researched, potential that is central in this research. Art can also stimulate a different way of thinking, more critical, and more creative. In this manner, people can become more open to various sides of the issue and to new evidence. The creative approach can help people to overcome the barrier of the complexities and unknowns of climate change (Bentz, 2020; Yusoff & Gabrys, 2011). The arts can be politically disruptive, but this disruption can be seen as the articulation of the un-sayable and un-thinkable (Gabrys & Yusoff, 2012). Art is not about being certain, correct, or exact, it has an inherent openness to ideas, no matter if they are ambiguous, feasible or chaotic. It is this openness that can bring people new insights into what is possible (Bentz, 2020; Yusoff & Gabrys, 2011).

Furthermore, art, through the imagining of the future, can show us alternatives and possibilities for adaptation, and in doing so start a process of developing adaptive capacities and stimulate cultural and emotional resilience (Volpe, 2018; Gabrys & Yusoff, 2012; Yusoff & Gabrys, 2011).

Art & policy

There is very little information available on efforts to integrate art into various types of policies, let alone specific to climate change adaptation policies. While it is possible that an artistic approach to policy-making has been taken in the past, the research has not revealed any example of the practice. Some inspiration can be gained from cultural policies governing arts funding or public art.

Bentz (2020) warns that the full potential of art cannot be accessed when artwork serves a subordinate role in collaborations, for example by visualizing pre-conceived ideas or impact data. However this role can still be highly valuable for the communication of climate change to the public in a more accessible manner.

Pollock and Paddison (2010) discussed the challenges surrounding the embedding of public art into policy. Policies on public art value art for the purpose of inscribing identity to a place, and stimulating social and economic regeneration. However, the effect of public art policies has not been evaluated consistently and not all policies are fully committed to spreading public art, some policies are merely tokenistic. Pollock and Paddison (2010) identified two types of public art policies: supportive and committed. Supportive policies are in essence facilitative, working on a case by case basis. Committed policies have a more strategic and active approach to the spread of public art. It is important to assess the level of commitment because it reflects the relationships between enabling factors (e.g. governance, economic, etc.)

and the networks of the actors involved (e.g. planners, artists). These relationships need to be mutually beneficial (Pollock & Paddison, 2010).

One of the main challenges for embedding (public) art into policy is bringing art into an institutional structure, while still allowing for diversity, risk, and local specificity in artistic practice. Prescriptive procedures can lead to stagnation, rather than innovation and creativity. However, a more ad hoc approach, and lack of embeddedness, can leave the process and the budget too flexible. Art policies need a framework that is clear and robust, but also leaves enough room for the creative process (Pollock & Paddison, 2010). This will likely always be a challenge for the integration of arts into any type of policy: institutionalising art without limiting creativity.

Other challenges for public art policies are: budgetary constraints and the question of who is financially responsible; where to embed the policy and awareness of the policy in various departments, spatial planning in particular; the role and positioning of a dedicated public art officer; and questioning of the meaning and value of the artwork and the policy (Pollock & Paddison, 2010). As for the issue of where to embed the policy, there is a conflict. There are arguably benefits to embedding the policy in a planning department, which is well connected to related agencies and allows public art to become a natural part of the planning process. However, the concrete nature of planning might not fit the social agenda of public art policies, and the priorities, strict budgetary, and time constraints oppose an artist's creative process (Pollock & Paddison, 2010).

Often public art policies require a participatory process for the creation of the artwork or a democratic process in the selection to increase local appreciation of the work and prevent feelings of imposition (Pollock & Paddison, 2010). However, not all artists are accustomed to working in a participatory setting. A participatory approach also begs the question: who gets to participate? Selection practices aimed at being inclusive, have been criticized for victimizing community members by inviting the under-privileged to participate (Pollock & Paddison, 2010). In addition, there is concern about how participatory art plays out over time, when participants might no longer be part of the community, but the artwork remains. A participatory process might not always be suitable, therefore, it is important to maintain a flexible relationship between policy, art process and the public (Pollock & Paddison, 2010).

Belfiore (2002) reviewed and critiqued cultural policies in the UK that aimed to use art to alleviate social exclusion. She states that in the early 80s the arts world was looking for new powerful arguments against reductions in funding. The longstanding idea that the arts can contribute to social inclusion and neighbourhood renewal became a core argument for why the arts deserved public funding. However, there has been very little evaluation of the social impacts of the subsidized arts (Belfiore, 2002). Furthermore, there exists a conflict in the evaluation of funded arts projects on what is considered successful. When art is used as a tool, the question is if a project can be considered successful if the objective, for example social inclusion, is achieved, but the end product is not regarded as quality art or art at all (Belfiore, 2002). It is important to consider, before integrating art into other practices or policies, what results are needed for the project to be regarded as successful. Belfiore (2002) advocates for a more diversified understanding of quality that can avoid the friction between different notions of quality. In particular, Belfiore (2002) advises to make evaluation criteria from funding bodies relevant to a variety of activities.

There is a risk in using art as a tool for other purposes, because it can turn into a matter of value for money and lose its artistic value (Belfiore, 2002). Belfiore (2002) follows the

rationale that because the arts are supported by public funding, it can be expected that they have some obligations to society. However, she is concerned that cultural policies that use art merely as a tool cannot be sustained in the long-term and can eventually be detrimental to the arts world, as artistic value is no longer a priority.

Gabrys and Yusoff (2012) argue that the material practices of arts and sciences inform political possibilities. A better realignment of arts and sciences in relation to politics can change how these practices work and lead to a more innovative approach to climate change. While the joint experiences of arts-sciences and environmental change may not result in concrete solutions, through an innovative approach they can open up new political possibilities (Gabrys & Yusoff, 2012).

Climate change adaptation

Climate change adaptation is about envisioning a positive alternative future, as opposed to the negative scenarios of climate change impact. Commonly adaptation strategies are highly localised. This can bring adaptation strategies into the public sphere, in which there is a need to embed adaptation into everyday practices (Yusoff & Gabrys, 2011). Adaptation is often focused on engineering solutions for flood protection, building practices et cetera. As such, the policies often fall within spatial planning departments (Yusoff & Gabrys, 2011). Within climate change adaptation, there is growing attention for flexible adaptive systems, which are better equipped to deal with the uncertainties around the exact impacts of climate change (Toimil et al., 2020).

Although the emphasis is often on technical solutions, climate change adaptation also needs behavioural change in society (Burke, Ockwell & Whitmarsh, 2018). While social psychology recognizes that behavioural change will only occur if there is both cognitive and affective engagement, policies to stimulate climate change engagement focus on the cognitive side. Engagement policies are focused on informing the public, often through rational arguments, for examplethe financial benefits of energy saving (Burke, Ockwell & Whitmarsh, 2018). Integrating art into these policies can enhance both affective and cognitive engagement. Adapting to climate change and the uncertainties of the future requires a transformational thinking that involves all sides of the issue. Adaptation needs a new approach that involves different understandings of agency and human-environment relationships, and realigns practices and contexts of science production as well as policy-making (Toimil et al., 2020; Tyszczuk & Smith, 2018).

One central question in climate change adaptation is about what society will need to survive in the future. Often, adaptation science and policy focus on the technical side of the issue and neglect the social and political connections that make survival possible and ethical (Yusoff & Gabrys, 2011). Tyszczuk and Smith (2018) argue that the development of climate change scenarios especially offers opportunities for bringing culture into climate change adaptation. Toimil et al. (2020) see importance for the consideration of socio-economic pathways in climate change scenarios because it helps us to understand the sensitivity of decisions for our future. McNamara (2013) advocates for bringing more local ecological knowledge into adaptation policies to make them more locally and culturally appropriate. Adjusting policies to local context can increase policy effectiveness, by taking into account local capabilities and because people are more likely to abide by a policy that is culturally appropriate (McNamara, 2013).

Khirfan and El-Shayeb (2020) discuss the role socio-ecological planning can play for urban climate resilience. They propose a framework for socio-ecological planning in which they deploy the charrette as an interactive design activity that supports data gathering and inclusion. It can stimulate the mobilization of knowledge-to-action for urban design and ecosystems (Khirfan & El-Shayeb, 2020). This could also open up the design and planning process for local ecological knowledge and cultural values.

Methodology

Methods

The data in this research was mainly gathered through semi-structured in-depth interviews. The interviews were conducted online, using either Google Meet or Zoom. In total, 10 interviews were conducted with 11 participants. At the request of the participants, one interview was conducted with two policymakers who work closely together. The interviews lasted between 55 minutes and 1 hour and 35 minutes. In preparation for the interviews I familiarised myself with the work of the participants and conducted a limited review of cultural policies and climate change adaptation policies on Prince Edward Island. Several policy documents were suggested by participants ahead of their respective interviews. Other documents were accessed through the website of the Department of Environment, Energy and Climate Action. The policy review informed the preparation of question probes and provided context to better understand the answers of participants.

Participant recruitment

Potential participants were identified through search engines, relevant websites (government, artist organisations on PEI), personal contacts, and by using the snow-ball method (Stratford & Bradshaw, 2016).

Participants

There were three categories of participants in this research which are explained below. The number in the subheadings indicates how many participants belong to the group.

Artists (5)

The artists were people who work (semi)professionally with any type of artistic medium on PEI, with the preferred topic of climate change. One of the artists had a background in cultural policy work and therefore had additional insight. One US-based artist has no connection to PEI. They were included for their expertise with climate art, because their work has a more specific focus on climate change in comparison to the other participating artists.

Policymakers (3)

The policymakers were people who work in municipal or provincial government on PEI on policies for climate change adaptation.

Cultural experts (3)

The cultural experts were people who coordinate or are representatives of artistic groups or organisations which support the artistic community.

Data analysis

In preparation for data analysis, all interviews were transcribed verbatim. The transcriptions were sent to the participants for review, and minor adjustments to the transcripts were made for clarification purposes. Transcriptions were anonymised to the maximum extent possible and

pseudonyms are used in any references to the interviews. The transcriptions were then coded in Atlas.ti 9 using inductive codes and deductive code groups. The analysis focused on three parts:

1. Concerns about climate change adaptation
2. The potential of climate art
3. Ideas for the integration of artistic processes into adaptation policies

Results

The interviews covered several topics in order to find ways of using art and artistic processes to strengthen climate change adaptation policies. The interview findings are structured according to three main themes. First, participant's concerns about climate change impacts and climate change adaptation on PEI are discussed. This is followed by a discussion of the potential impact of art as perceived by the participants. Finally, three possible manners of integrating art into climate change adaptation are discussed, alongside the requirements to make them work.

Concerns about climate change and climate change adaptation on Prince Edward Island

According to the participants, the main climate change related risk on PEI is flooding due to sea-level rise and storm surges. Almost every mention of sea-level rise was accompanied by the mention of shoreline erosion. Jason (cultural expert) clarified that shoreline erosion is not necessarily a climate change impact itself, but the long-standing problem on the island increased PEI's vulnerability to climate change and has masked the early effects of sea-level rise. Several participants also noted that they have already been experiencing an increase in hurricanes and storms over the past decade.

"We're getting more dramatic storms, which have, can and have devastated both natural and built heritage in the province. (…) When I was a child growing up in PEI, I never worried about a hurricane. (…) We have a fairly good sized hurricane every couple of years now." (Maria, cultural expert)

In addition to the impacts of climate change, participants were asked what concerns them about adaptation policies. In the interviews with artists and cultural experts, the focus was on issues the participants believe to require additional attention. In the interviews with policymakers, the question focused on the challenges they experience in policymaking.

The main concern of artists, cultural experts, and policymakers, was about how public engagement can be improved. The policymakers made it clear that pressure from the community is needed to influence the priorities of politicians which ultimately determines what policies are developed. Jen (policymaker) recalled a community input-session shortly after hurricane Sandy, which redirected the waterfront development plan: "You never want to waste a good storm opportunity to get people's attention in, in terms of policymaking, because when people made it a priority, so did the decision makers." The policymakers also considered pressure from an engaged community important in establishing the necessary buy-in from the

various stakeholders and other governmental departments. Jen and Sara (policymakers) pointed out that climate change adaptation requires action from departments other than the Climate Action department alone, for example health, agriculture, and planning. It is important to engage these departments and stimulate their work on adaptation; because adaptation is not their main focus. Sara also expressed concern that these departments are more resistant to change, than the relatively young Climate Action Department.

Many of the expressed concerns about climate change adaptation relate back to difficulties with establishing public engagement. Jason noted that difficulties in understanding the scale of climate change can be a barrier to engagement:

"I think the thing that's interesting about climate change is the idea that there really isn't any going back. It's gonna happen, it isn't gonna happen at kind of a steady pace, but it's gonna happen in inexorable pace, and it'll be sort of a slow motion disaster. And I think that's a hard thing for people to get their heads around is like, even if you're sort of disaster aware, you're sort of disaster aware on that sort of, like weather scale, as opposed to a climate scale." (Jason, cultural expert

In relation to the difficulty of processing the scale of climate change, the complex timeframe was also seen as a potential barrier to engagement. Eight participants expressed a need to create a sense of urgency and stimulate long-term thinking. For this purpose, the participants identified a need for improved comprehension of the scale and timeframe of climate change. Jen (policymaker) noted that "one of the biggest challenges is that timeframe and making climate change a priority".

A long-term perspective was also seen as important in recognizing the small-scale impacts of climate change that PEI is already experiencing, but which are often viewed as individual events. Maria (cultural expert) gave the example of water barricades on the shoreline that had to be replaced twice within a five year period. Jen (policymaker) remarked:

"If there's a drought, and we're supporting the agricultural community, you know, we're really just looking at the economy from that perspective of the season, not looking at the drought as an impact of climate change. So it's the timescale tends to be a challenge when it comes to policymaking, because we're dealing with the immediate issues and reacting as we go." (Jen, policymaker)

Jason (cultural expert) believed that the lack of recognition of the role of climate change in certain incidents could be related to pre-existing land-use issues that are worsened by climate change. Participants repeatedly referred to pre-existing issues, such as land erosion and intensive agricultural, and consider them as potential barriers to engagement. These issues were also seen as possible competition in governmental priorities

Prioritisation was a particular concern of policy-makers and was something they would welcome support on. They noted that it is not practically possible to work on all the needed solutions at the same time. Climate change adaptation requires choices to be made on what to work on first and the policymakers believed there is no one better to set priorities for adaptation than community members themselves. Policymakers wanted to know what choices the community would make, when not all issues can be resolved simultaneously. The need for prioritisation relates to concerns about competing interests within governments, since the money that is used for adaptation cannot be used for something else. Because of the long-term

timeframe, other issues are often ascribed a higher priority. Therefor, it was considered necessary to gain support on many levels. As Monica put it:

"You need to have buy-in at a lot of different levels, you have to have community support for the policies, you have to have Council, city council and elected official support, as well as support from the other departments. A lot of the policies, you know, that will develop over the next while will be expensive. So there's, there's like a risk in terms of, do we want to allocate our funds this way? Well, you know, (…) as someone working in the climate field, you know, it's easy to see that this is an essential purchase. But for a lot of people, it's still kind of working on that mindset, that this is something that it doesn't matter how much it costs, we still… we have to do it. " (Monica, policy-maker)

In addition to competing interests within the government, participants expressed concern about external influences. Of particular concern were the interests of the agricultural and the tourism sectors. The potato industry, in particular, was seen as being influential in government decisions, while being a major contributor to the climate change vulnerability of PEI by depleting the soil and decreasing biodiversity. Concerns about the tourism sector were focused on the high-quantity use of freshwater by cruise ships. Nora (artist) explained that the island has a limited supply, as it is dependent on groundwater sources. Both Maria (cultural expert) and Nora (artist) expressed concern that continued water consumption by cruise ships can lead to water scarcity on the island.

The potential impact of art

The main potential for art that participants identified, was the potential to help increase climate change awareness and engagement. The participants described a variety of capabilities of art that allow it to reach that potential, such as increasing people's understanding of what climate change is and by connecting people to climate change on an emotional level. These capabilities are discussed in more detail in the following paragraphs.

Participants discussed various ways in which art can engage people, but the most mentioned aspect was the processing of difficult emotions. Six participants – artists, policymakers and cultural experts – noted that art can express thoughts and emotions which people struggle to articulate. The participants believed that many people avoid the issue of climate change, because it is too overwhelming and they do not know how to deal with the daunting reality. Monica (policymaker) said: "there can be a lot of doom and gloom type of messaging. And people just close off to it, they can't connect to it on a human level, it just feels almost like a guilt trip." She expressed hope that "an artistic approach can appeal to us as humans in a different way" (Monica, policymaker). The potential for climate art to be confrontational and hold up a mirror to society was discussed in several ways. Chris (U.S. artist) noted that people had visceral reactions to his own work on the permanency of climate change impacts. A concern was repeatedly expressed that while climate art can be impactful through confrontation, it can also cause people to withdraw. As Gabrielle put it:

"people don't want more stories about drowning polar bears and melting ice caps. Because it sort of paralyses people with fear. (…) And so I'm trying to approach climate change from an adaptation perspective, and I'm trying to make it community engaging, and approachable and not everything is 'Doom'. (…) Climate change is here, but adaptation is possible, and we can find solutions." (Gabrielle, artist)

While the participants saw value in confrontational art, they also felt a need for more nuanced climate art and positive messaging. Four participants discussed issues of climate grief and believed art can help, because people can gain a sense of recognition and feel less alone. Nora said:

"let's just start by describing this feeling. Let's not put any judgement or morals or... on it, let's just describe it and see if other people feel the same way. And if we can meet each other, at this very base level of acknowledging shared emotions, despite what political background we might be from. I think that would be like a really good evening of the playing field. That's maybe where the conversation can begin." (Nora, artist).

The participants added how important it is to process these emotions, not only to engage new people, but also to keep people engaged when they struggle with climate grief. The processing of emotions and feeling part of a community were seen as important steps towards starting the discussion, stimulating engagement and eventually change.

Maria (cultural expert) expressed two separate functions for the confrontational and the softer side of climate art.

"There's really political, aggressive art that wants you to have a very strong reaction. But then there's this gentle beauty. And I guess it says two things. There's like, art can point out what's wrong, and art can show you a vision of the way the world could be. Maybe it can do both at the same time." (Maria, cultural expert)

Eight participants discussed how beyond reaching people on an emotional level, climate art can also lead to engagement by increasing people's understanding of the problem. Climate data is difficult to comprehend for non-experts, but climate art can translate the information to a more digestible and tangible format. Jen (policymaker) noted that "the data itself hasn't been successful to date" in convincing people to act, so she did not know "if there is any other way other than through the arts".

Finally, six participants discussed that art can increase creative thinking. Jason (cultural expert) believed "creativity breeds creativity". As Max remarked new ideas are highly necessary to find solutions for climate change adaptation:

"Thinking otherwise. Not thinking the same way all the time. Artists are really valuable for that (...) Maybe it's time for our leadership to acknowledge that it doesn't know what it's doing. It's locked into patterns that don't work in this context. So what does it need more than anything? Different ideas. They could be wrong ideas or failures, but they're different. And that's actually essential at this moment in history, I think." (Max, artist)

The policymakers remarked that when creating policies it is easy to overlook opportunities and to get stuck in a routine of "how it's always been done" (Jen, policymaker). The participants believed creative processes can break through that barrier and allow fresh ideas to be developed. The use of creative processes to stimulate creative thinking will be discussed further in the next section on integrating art into policies.

Integrating art into climate change adaptation policies

The intent of this research was to find a way to integrate the arts into climate change adaptation policies. The participants were asked what possibilities and restrictions they perceived for bringing art and policy together. In addition they were asked for their opinions on two preconceived concepts and one concept that was suggested by the first interview participant. In this section each concept is explained and the most important feedback is discussed. The discussion of the three core concepts is followed by a discussion of other ideas, concerns and restrictions that were suggested by the participants.

Collaboration between artists and policymakers

The first concept was to develop a collaborative process in which artists and policymakers work together in a creative setting on issues that the policymakers are struggling with. This concept would involve creative activities and artistic mediums to facilitate the collaboration. The concept was based on the assumption that at art and especially the process of making art can support problem solving by stimulating creative thinking.

Four participants expressed concern about artists and policymakers speaking two different languages, while they also saw value in the different workstyles. Max (cultural expert) said "it's kind of nice to have this different way of doing things, but it could create real problems, too. So I guess the danger is they're not really speaking the same language". Four participants discussed a need for the collaborative setting to be flexible in terms of time-frame and end-product, while simultaneously providing enough structure to support the work of policymakers. Matt (artist) remarked that he would need "an openness to experimentation with the understanding that it might not work as intended or it went a completely different direction. An open endedness to it, I think would allow a lot more creativity". Nine participants discussed the importance of ensuring equal footing for everyone involved. A neutral space for collaboration was seen crucial in establishing equality. Max (cultural expert) asked "Why does the policymaker never do this collaboration in the artist's studio? Why is the assumption that the artist studio is, in some sense, lower on the totem pole?". In addition, the policymakers expressed a concern that some policymakers are set in their ways and not open enough to a new and unproven way of working, especially in departments whose primary focus is not on climate change.

Artistic processes for community input

The second concept was to use participatory arts practices in which artists work with community-members to co-create 'artwork' in which they give input to policies. This second concept was founded on the premise that a creative setting makes it easier for people to discuss and share on such a complex topic, when they feel they lack the appropriate-level of knowledge.

An important note of feedback on the second concept was that policymakers need to be part of the activities. As Gabrielle (artist) said: "So I think that this idea of community engagement is incredibly strong. But it's just a matter of how, how do you actually get the people to show up, who can make decisions? Because they're just not". Two participants expected that the public will be more engaged with the process if they believe policymakers are taking the activities seriously. Nora (artist) noted that she has seen very few results come from input-sessions:

"I see politicians paying lip service to those kinds of events, or gatherings or consultations, but not really internalising them, not really trying to meet on the level of their

communities. They just sort of go there for a photo opportunity and go back and smoke a cigar with the old boys and make their deals like they always have." (Nora, artist)

The policymakers who participated in the research noted that for them one of the most important things is to know who would want to be part of such activities. Another important note, suggested by four participants, was to ensure that the community members represent a cross-section of the community. Policymakers remarked that they have in the past struggled to make input sessions representative of the whole community. Monica (policymaker) said that "ensuring that the people that are in the room are representative of the larger community, that's a challenge, sometimes I feel like I'm talking to 25% of the type of people who are in our community". Matt (artist) remarked that in his experience with public input-sessions "you're going to get the people who really are opposed to it, who want to be there to be heard. And you're gonna get people who are really supportive of it who want to be there and heard". He added that an artistic approach could make it easier for people without an active interest in the topic to contribute. The policymakers expressed they would especially appreciate these sessions to gain input from the public in setting the priorities within climate change adaptation actions, and the priorities for policies in general.

Artist-in-residence at the climate action department

The third concept was to establish an artist-in-residence position at the climate action department, or any relevant governmental department, where an artist is working on climate change adaptation as an artistic subject and where policymakers can walk in and out of the studio. Policymakers could feel inspired by the artistic context around them, but also come to the artist when they need a fresh perspective on an issue.

This third concept was suggested by Jason (cultural expert) to overcome the differences in approach and timeframe in the way policymakers and artists work.

"There has to be some format in these engagements that allows artists to proceed at the pace and in the style that they're good at it, but in such a way that's sort of transparent to the policymakers or engaged with the policymakers. And so the model I really like, is artists-in-residence." (Jason, cultural expert)

Jason expected that having "the context of art around them", would stimulate policymakers in developing new ideas.

While the artist-in-residence position allows both artists and policymakers to work in the manner they are used to, three participants remarked that it risks being too casual.

"My only pushback with that. I'm afraid that if it was just an artist in residency, that it might not be enough. I think that having a clearly defined scope of a project would be good, to get the artists and policymakers to work together and having some sort of presentation to the greater community, would be helpful in creating that dialogue and that buy-in from them." (Chris, U.S. artist)

Interaction between the two sides could become optional and opportunities could go wasted. Therefore, the participants noted that the artist-in-residence position should be combined with regular activities, such as workshops, discussions, walks etcetera, to make sure it is used to its full potential.

"It's just a good way to have real tangible, like, cross pollinating across departments. Having like workshops for the people in the climate departments that are.. (…) There's a lot of potential there for sure. I would do that in a heartbeat, that would be awesome." (Matt, artist)

Other considerations

While there was support for all three ideas, there were also concerns about each of them. For all three the main concern, shared by all participants, was to create a space of equality for everyone involved. Monica (policymaker) said: "I don't want to be the no person in the room, I want us to all have the same parameters on it, so that we can all be creative together". This concern about being in charge of staying within the parameters was shared by the other policymakers. On the other hand, artist and cultural experts noted that policymaker "aren't very good at ceding power" (Max, cultural expert), and this could impede the process. For both issues the same solution was suggested, that is to set clear goals and share responsibility for the parameters of the process. Chris (U.S. artist) remarked that "having very specifically defined goals and scope of projects can help clarify things, working with constraints is a valuable thing to artists often".

Three participants shared a concern that not every artist has the appropriate skills to collaborate with policy makers or the public. However, Maria (cultural expert) noted that while it takes skills to facilitate collaborative activities, unsuitable artists would likely self-select and not take on the role.

The most important feedback of the participants is that these three ideas are not mutually exclusive. Three participants remarked that by combining them the benefits of all three can be achieved, while also resolving some of the concerns about the individual ideas. As Chris said:

"I think that all three of these options that you have are great ideas, and they're not mutually exclusive. Not only are they not mutually exclusive, I think they fit together. And I think that it would work best if something like this was fit together in a concerted way. (…) I think that like, all three of those things together would be stellar." (Chris, U.S. artist)

Discussion & Conclusion

The aim of this study was to find ways to integrate art into climate change adaptation policies in order to strengthen those policies. The research has identified several challenges for climate change adaptation policies, and potential solution in the strengths of art.

On Prince Edward Island, the main concerns about climate change related to the risk of flooding as a consequence of sea-level rise and increased storm surges, and the vulnerability due to land erosion. The risks of coastal impacts of climate change have been established by Fenech et al. (2017) in their development of a visualisation tool for the impacts. In addition, participants expressed concern about the influence of competing interests, such as agriculture and tourism, on the development of adaptation policies. Further information on this potential influence was not available.

With regard to adaptation policies, a central concern is about the engagement of not only the public, but also other stakeholders such as the various governmental departments. The policymakers made clear that 'buy-in' is needed in all departments, because the majority of the necessary adaptation developments falls under the jurisdiction of departments other than Climate Action. Because those departments have their own core objectives, there is concern that climate change adaptation is not made a priority. Increased public engagement can play an important role in influencing the priority level of climate change adaptation within the government.

The research participants considered it a strength of art to stimulate creative thinking, for which they saw a need in adaptation policymaking. Similarly, Tyszczuk and Smith (2018) identified a need for innovation and transformational thinking, as a consequence of the uncertainties around climate change, and the potential solution in art (Bentz, 2020; Knebusch, 2008; Toimil et al., 2020; Tyszczuk & Smith, 2018; Yusoff & Gabrys, 2011).

A major difficulty in climate change adaptation is the uncertainty about the exact impacts of climate change. In order to deal with the uncertainties, multiple climate change scenarios were developed, making it possible to prepare for different possibilities (Toimil et al., 2020; Tyszczuk & Smith, 2018; Yusoff & Gabrys, 2011). Previous literature made it clear that climate change adaptation is commonly focused on engineering solutions to strengthen the built environment to withstand climate change impacts. The impact of climate change on community values or culture has received(Yusoff & Gabrys, 2011). Tyszczuk and Smith (2018), and Toimil et al. (2020), argued that the use of climate change scenarios provides an opportunity to take cultural issues and socio-economic pathways into consideration for climate change adaptation.

The participants identified several barriers to public engagement. The difficulty to comprehend the scale and timeframe of climate change, was seen as the most important obstacle. It was discussed that people have not always recognises the connection between individual incidents, such as storms, and the changing climate, because of the extended timeframe of climate change. A long-term perspective could not only improve the understanding how climate change will affect the island in the future, but also to understand the impact it already has. Art could improve the comprehension of the complex scale and timeframe of climate change by translating the information into a digestible format.

Burke, Ockwell and Whitmarsh (2018) note that policies mainly aim to engage the public by using rational arguments, commonly focused on economic reasoning. This is not necessarily the best strategy for engagement (Burke, Ockwell & Whitmarsh, 2018). Establishing an emotional connection can accomplish more for engagement, than economic arguments (Toimil et al., 2020; Tyszczuk & Smith, 2018). The study has found it to be a core strength of art to create an emotional connection. It can also increase public engagement by accessing the imagination and allowing people to envision the possible scenarios (Bentz, 2020; Yusoff & Gabrys, 2011).

For art to fulfil its full potential in establishing an emotional connection, it is important to maintain a balance between confrontation and support. Several interview participants noted that art has a way of expressing thoughts and emotions which people find difficult to articulate. Unfortunately, these are most often negative emotions. It is expressed in several articles that apocalyptic climate art can lead to apathy instead of engagement (Burke, Ockwell & Whitmarsh, 2018; Miles, 2010; Volpe, 2018; Yusoff & Gabrys, 2011). This concern was shared by the participants who all expressed the importance of a softer approach in art. The participants

conveyed that, by showing the beauty that exists in the world and possible solutions, art can help process the negative emotions that confrontational art can bring to the surface and can turn despair into hope. According to Bentz (2020), participatory arts especially can play a role in transforming negative emotions, because it can empower participants. Since negative emotions such as fear and despair are often not conducive to action, the participants consider the potential of art for the processing of emotions is seen as very important to encourage engagement.

This research developed three core concepts for the integration of artistic processes into climate change adaptation policymaking. These concepts have been inspired by previous literature and refined according to the feedback from interview participants. As noted earlier these ideas are not mutually exclusive and it has been suggested that a combination of all three would work best. Through consolidation of the three core ideas, the research proposes one concept for the integration of artistic processes into policymaking. The final concept is to establish an artist-in-residence position at the relevant governmental department; in addition to their own artistic work, the artist will, on a regular basis, hold creative sessions with policymakers to inspire out-of-the-box thinking; and the artist will lead creative or participatory art sessions with the general public to gain community input for the policymakers.

To successfully implement this concept there are several things to take into consideration. There needs to be a balance between a clear structure that is understandable for everyone involved, and flexibility and freedom that allows for creativity and artistic expression. The artist requires access to the right materials; not only artistic material, but also access to policies that are in development. In all activities there needs to be equal footing between the different parties, so that everyone feels comfortable contributing. In addition, a clear intent for the activity needs to be established at the start, in order for everyone to work towards the same goal. In the community input-sessions, it is important that policymakers and government representatives are participating as well. People are more inclined to actively participate, if they believe something will be done with their input. It is a challenge to engage a cross-section of the community to participate in these activities. For this purpose, it is important to make clear that everyone's voice matters and there is no need to be an expert on the topic at hand.

The final concept is based on the potential that artists, policymakers, and cultural experts identified for art to contribute to the development of climate change adaptation policies. It is impossible to state with certainty the effect it will have in practice without a trial implementation. However, the findings suggest that there are opportunities which are worthwhile to pursue. Interest in the research concept exists on Prince Edward Island, in combination with the relatively small population and the active work on climate change adaptation, this could make Prince Edward Island an excellent testing ground for the integration of art into adaptation.

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