

Why is it so hard to think about the future?

**An autoethnographic exploration of future
thinking and the future self.**

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ABSTRACT

A recent survey revealed that most people do not think about the far future. Most respondents rarely or never thought 30 years into the future, and about 27% rarely or never think even five years ahead (Institute for the Future, 2017). This has major impacts for society, especially with regards to long-term issues such as climate change. This project explores the barriers to thinking about the future with the aim of investigating how more people might be enabled to participate in future-thinking activities in ways that are both empowering and appropriate to them. Furthermore, an autoethnography-guided literature review explores how people might foster stronger relationships with their future selves such that they (and society) can better act in the present towards beneficial long-term goals.

The project work culminates in the proposal of five recommendations for those interested in future thinking. The hope is that these will inspire both those who are beginning a personal future thinking practice and foresight practitioners attempting to understand the challenges people face when they are asked to think about the far future.

ACKNOWLEDGEMENTS

As a settler, I have a responsibility to perpetually grow my understanding of the land I inhabit. To be able to acknowledge the land and the relationship Indigenous Peoples have with it, I also need to continue to cultivate a relationship with the land and the natural world. In part, this means bringing to my mind and work the connections I have to the land I grew up on. How the wet ferns felt on my legs as I'd run through the forest with my best friend, how I came to know which trees were the best for climbing, and how rubbing the inside of some plants could dampen stings from nettles. I will continue to cultivate this relationship.

I acknowledge that the work of this project took place on the traditional territories of the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples, and also on the traditional territories of the WSÁNEĆ and Lkwungen-speaking peoples.

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DEDICATION

To my grandparents, my mom, and the people I love,

To my young cousins who are our family's future,

To those who care about our earth,

And to my future self

TABLE OF CONTENTS

Copyright Notice	6
Abstract	7
Acknowledgements	8
Dedication	9
1. The Issue	10
Overview	11
2. The Project	13
Overview	14
Research Questions	15
Research Approach	16
Overview	16
Methods and Tools	18
Photography	18
Three Horizons	19
Autoethnography	21
Literature Review	21
Systems Thinking	22
3. Outputs	24
Overview	25
The Future Self & Aging	27
Photo 1: Protection	27
Context	28
Reflection	29
Literature Review: The Future Self	30
The Future Self as a Neurological Stranger	30
Intertemporal Choice	30
Literature Review: Aging	31
A New Skill	31
Societal Attitudes on Aging	31
Early Internalized Stereotypes	32

Table of contents

Conceptions of Time	34
Photo 2: Restriction	34
Context	35
Photo 3: Constriction	36
Context	37
Reflection	38
Literature Review	39
Sexual Division of Temporal Labour	39
Temporal Relationships	40
Self-Transcendent Experiences	42
Photo 4: Relief	42
Context	43
Photo 5: Escape	44
Context	45
Reflection	46
Literature Review	47
Neurology of STEs	47
Flow State	48
Vividness	50
Photo 6: Breathe	50
Context	51
Photo 7: Growth	52
Context	53
Reflection	54
Literature Review	55
Emotion, Personal Significance, and Temporality	55
Personal Visualization Capabilities	56

Table of contents

The Role of Memory	58
Photo 8: Regrowth	58
Context	59
Photo 9: Decomposition	60
Context	61
Reflection	62
Literature Review	63
Adaptive Advantage	63
Future Thinking is Generative	64
Future Thinking is Also Constrained	65
Summary of findings	66
4. Outcomes	68
Recommendations	69
Overview	69
Recommendation 1: It's about experiences and change, not clock time	70
1a. Hold positive view of your own aging and the aging of others	70
1b. Remove the 'future' from future thinking.	71
1c. Find empowerment in different experiences of time	72
Recommendation 2. See yourself as continuous in time and foster a relationship with future self	73
2a. See yourself as continuous in time with just one identity over time.	73
2b. Even out the vividness of the present and the future	73
Recommendation 3. Give yourself more personal foresight material to work with	74
3a. Bring in new points of origin	74
3b. Process experiences, including future ones, more deeply	75
Recommendation 4. Choose tools that allow for iteration to overcome initial reactions	76
4a. Mitigate your current mood	76
Recommendation 5. Get beyond words	77
5a. Choose creative methods that leverage neurological processes	77
5b. Develop a personalized creative practice	77

Table of contents

5. Impact	78
Impact	79
Photo 10: Rebirth	79
Context	80
Reflection	80
Impact Evaluation	81
Criteria 1	81
Criteria 2	81
6. Conclusion	82
7. References	84

LIST OF TABLES

Table 1: Research questions	15
Table 2: Summary of research cycles	17
Table 3: Contextualization of the Three Horizons framework	20
Table 4: Summary of key insights	66

LIST OF FIGURES

Figure 1: Three Horizons framework (adapted from Sharpe et al, 2016)	19
Figure 2: Literature review boundaries	23

LIST OF PHOTOS

Photo 1: Protection	27
Photo 2: Restriction	34
Photo 3: Constriction	36
Photo 4: Relief	42
Photo 5: Escape	44
Photo 6: Breathe	50
Photo 8: Regrowth	58
Photo 9: Decomposition	60
Photo 10: Rebirth	79

1. THE ISSUE

OVERVIEW

Considering society's most pressing issues require extensive future thinking, the fact that most people do not do so regularly is worrying. Climate change in particular will require both long-term planning and sustained actions over many decades (even centuries, likely) in order to simply slow it down. Because greenhouse gases remain in the atmosphere for tens to hundreds of years (Environmental Protection Agency, 2020), even if climate action starts immediately there will be unavoidable impacts in the next few decades (Climate Action: Key findings, UN, n.d.). We cannot wait until we personally experience climate change impacts to plan and act. We must instead use our mental time travel abilities to align our present actions with the future we desire.

In 2017, The Institute for the Future, an independent non-profit research organization, conducted an online survey of 2,800 adults to explore how often people think about the far future. The results indicated that more than half (53%) of respondents rarely or never think about life 30 years into the future. Interestingly, a substantial number of respondents (27%) reported that they do not think even five years into the future. According to the survey report, the actual percentage of American adults who do not think about the far future may be even higher because the survey itself, advertised as future thinking research, may have attracted the most future-oriented respondents. While thinking about the far future varies across cultures, it is clear, especially in Western culture, that there is a strong need to nurture and support future thinking in as many people as possible.

Strategic foresight, a method used to engage people in anticipation and preparation for the future, relies heavily on mental time travel. According to Burrows & Gnad (2018), strategic foresight is a "re-framing process that allows for a better understanding of major drivers of societal change, interpreting weak signals of change and, therefore, considering plausible alternative futures" (p.9). It requires participants to explore multiple plausible futures that are both strange compared to the present and highly distinct from each other. So not only must participants mentally time travel far into the unknown, but they must also be prepared to take that journey multiple times, exploring both desirable and undesirable distant futures. Depending on the context of the foresight exercise and the participant, these future destinations can range from exciting to outright distressing. Clearly, strategic foresight activities ask a lot of us intellectually, psychologically, and emotionally, and this is especially true for more than half of adults who do not already regularly think about the far future.

1. The Issue

Overview

The impact of this on participation levels in foresight activities is obvious. As the Institute of the Future report suggests, it is likely that those who are already keen future thinkers will actively engage with the foresight activities that we (foresight practitioners) facilitate, while those uncomfortable with future thinking quietly opt out. A self-selecting bias like this can translate into a fundamental lack of diversity in the collective imaginings and visualizations of the future. If we are to understand the nuanced effects of a globally catastrophic force such as climate change, we need to engage the greatest possible diversity of experiences and perspectives. Diversity of perspective is integral to generating future scenarios that are effective for long-term planning and policy (e.g. Badminton, 2021). Leaving future thinking and foresight to those who already regularly engage in it is not just inadequate, it is irresponsible.

Through this project, I hope to inspire a greater drive for inclusivity in foresight work and empathy for those who volunteer or are called to participate in it. Instead of simply accepting that many people do not think about the far future, I want to understand why this is so and encourage others to inquire more deeply when they mostly see familiar faces and perspectives around their own foresight and strategic planning tables. I hope we can begin to do away with sentiments like “we invited them, but they didn’t come, so we’ve done all we can do” and “I guess they’re not that interested in the future.” Instead, when there is a lack of age, race, culture, gender, class, socioeconomic, and ability diversity, I hope we start to look beyond the typical excuses that keep us from making changes in how we engage people in future thinking and foresight.

2. THE PROJECT

OVERVIEW

Initially, I intended to use photography to document imagined futures. I wanted to bring into some tangible form the actual images people see when they think about the future within the context of climate change. My desire was to create a collection of photos that have never been seen outside of the minds of those who imagined them to better understand the nuanced ways that climate impacts might affect various people. I expected engaging with people to bring to life their fears and hopes based on the particulars of their own lives (rather than an averaged or a fictitious person) might help in the development of policy and programming to address the unique needs as we experience increasing climate impacts.

As I started the process of converting my own imagination into photos, I immediately encountered several challenges that caused me to pause and reflect on the project. While I knew that imagining the far future would be difficult, I was surprised how much harder it was to personalize the future in the context of an all-encompassing issue for which I had not yet experienced serious impacts. I could imagine temperatures rising and feeling that heat, but how would that impact my life 20-30 years from now? What adaptations would I need to make on a practical level to get through my day? How would such a change affect my socio-economic position? And how would this all affect my mood, emotions, and outlook on life? I understood that my future thinking around climate change had, up until now, been focussed on the environmental impacts, and that I would have to dig deep to place my whole human self within those impacts.

I would have to get to know myself better to represent myself in my imagined future, and this would be a vulnerable process. When I came to this realization, it made sense to shift to an autoethnography practice and to dive into the personal experience of future thinking. Ultimately, the project's focus became that of documenting the experience of consciously and purposely thinking about the far future to uncover what might be holding us back from connecting to our personal futures. My hope was that such an investigation might also help to uncover why we continue to miss many perspectives in foresight activities.

The entirety of this project happened during both the COVID-19 pandemic and a family emergency in which I lost a parent to cancer. As such, I expect that my imaginings of the future impacts of a growing global crisis (climate change) were informed and influenced by the experience of living in acute crises (death of a family member and a pandemic). The uniqueness of the research context deserves documentation, and as such, I endeavored where relevant to bring into view the circumstances under which this work took place.

RESEARCH QUESTIONS

The overarching objective of my research was to discover how to make future thinking more accessible, with the goal of increasing participation in future thinking and foresight activities. It was important to me to not just generate an inventory of issues and barriers, but rather, shine a light on a possible way forward. To this end, my research questions attempt to balance uncovering barriers and leverage points for change. To avoid being too heavily influenced by extant research that might lead me down well-worn paths, I initially used my own experiences to narrow down the boundaries of my research. Drawing out my experiences of future thinking that had, until now, not received much personal reflection allowed me to keep an open mind to the ultimate line of inquiry of the project. The research questions in Table 1 ultimately guided my project.

Table 1: Research Questions

Research Questions
<p>1. How might more people be enabled to think about the long-term future and meaningfully participate in foresight activities?</p> <ul style="list-style-type: none"> • What neurological processes are used to think about the long-term future and how might these be harnessed to enable more future thinking? • What are some of the emotional, psychological, cultural, and social barriers to thinking about the long-term future? How might these be minimized or removed to enable more future thinking?
<p>2. How might we foster stronger relationships with our future selves?</p> <ul style="list-style-type: none"> • How can I push my imagination of my future self to a place of empowerment and action?
<p>3. What might be some recommendations to enable more future thinking?</p> <ul style="list-style-type: none"> • What can be learned from this work that might benefit others interested in practicing future thinking?

RESEARCH APPROACH

Overview

My research process developed organically, starting with exploring and documenting how I imagined my future 25 years from now with respect to anticipated climate change impacts. This stage involved creating an initial series of photos that attempted to bring my future self to life amidst these impacts. I allowed the photos and the experience of engaging in conscious future thinking direct an investigation of existing related research. This involved reflecting on both the photos themselves and the photo-making process. The photos plus reflections developed into a visual-written autoethnography that guided the development of my literature review, and eventually led to the development of recommendations.

While the process developed organically and was not initially strongly guided by any one research theory, it bears several similarities to Community Based Participatory Research (CBRP) (also known as Participatory Action Research). CBRP was developed to be used within communities with diverse stakeholders, and according to Leavy & Harris (2019), the method's "design, data generation, and analysis usually occur as a responsive, recursive, or iterative process" (p.160). While I was the only research participant, this was very much my process. In particular, Leavy & Harris's further description of "the research team cycling back and repeating steps, checking data, and adapting to new insights" (p.160) is highly aligned with my approach.

de Fenney & Ball's (2018) Participatory Action Research (PAR) Praxis-Making Cycle shows a similar process to my own iterative research process. As such I will use it to illustrate how my methodology played out throughout the project. In their framework, PAR begins with an exploration phase and moves through recurring cycles of reflection, analysis, action. Table 2 summarizes how my chosen methodologies and tools fit into the stages of the PAR Praxis-Making Cycle. Upon the completion of the third cycle, I had enough material to produce outcomes (i.e. the recommendations), and discuss implications (through a final image). As such, I decided that the third cycle would be the final cycle.

2. The Project

Research Approach

Table 2: Summary of research cycles

Cycle	Phase	Activity
First Cycle	Exploration	Conceptualize and create initial photos
	Reflection	Reflect on first photos and the process of making them
	Analysis	Emergence of initial themes from photos, reflections, and initial literature review
	Action	Define literature review boundaries using system thinking principles
Second Cycle	Exploration	Develop new photographic concepts and explore related literature
	Reflection	Reflect on new photos and ongoing photo-making process and literature review
	Analysis	Discovery of dystopian theme in photos
	Action	Integrate Three Horizons framework to push towards more empowering images of the future
Third Cycle	Exploration	Conceptualize and create Three Horizons-inspired photos
	Reflection	Reflect on the process of envisioning more empowered futures
	Analysis	Organize and analyze all outputs created over the project
	Action	Draft recommendations

Methods and Tools

The following sections describe why and how the methods and tools were chosen and used in the project.

Photography

To explore my imaginings of the future, I needed something tangible to analyze. Because imagination can shift over time under the influence of factors such as mood, sensory stimuli, and changing attitudes and perspectives, I aimed to capture snapshots of my evolving imagination. One possibility was to develop written descriptions of the images in my mind. While it would have been a practical solution in that writing is familiar to me and those who might read my report, it did not feel like the best fit. I imagine in images and not words so I felt that immediately applying verbal processing to my imagination might result in the loss of important nuances. Using photography, however, offered both a familiar milieu and the chance to reproduce my mental images as accurately as possible without the limitations of changing code to a different form of expression.

According to Holm (2008), further benefits of photography in research include:

- Cameras make it possible to transport images of artifacts across both time and space, in which they can be analyzed by others in their original formats. For my purposes, this allowed me to make my imagination analyzable by others.
- Photos can be used to contrast a current situation to a change in one's life. In my case, this enabled me to contrast how my imagination of the future evolved throughout the project from dystopian to empowered.
- Photos offer a more open narrative that allows viewer engagement without the linguistic filter provided by an author. This was an added benefit as I hoped that this openness of interpretation might encourage others to also consider their own imaginings of the future as they viewed my photos.

Because climate change is such a vast issue, it can be challenging to consider one's own part in it. For this reason, I did not want to simply create generic visualizations, but instead, I hoped to capture highly personalized distant futures that I could reflect upon. According to Hunter (2020), using oneself as the photographic subject has its own advantages including:

- Being the subject of one's own narrative can promote a sense of personal agency.
- It promotes the claiming of one's identity in such a way that allows one to believe one's role more fully in the narrative.
- It allows one to learn more about how one presents their identity to others and narrates that identity privately to themselves.

2. The Project

Research Approach

The photo-making process required me to consciously engage in future thinking over the course of about six months. I used the following resources to execute the photographic documentation of my imagined future:

- Photo equipment (digital camera, tripod, reflector, etc.)
- Props to be used in creating the scenes to be photographed (for example, respiration masks, VR goggles, and organic material)
- Photo assistants
- Other digital equipment and software (laptop, photo editing software)

Three Horizons

I also incorporated the Three Horizons (3Hs) framework (figure 1) in the latter part of my photo-making process. The three lines in the Three Horizons framework represent different systems or patterns in an area of interest (Sharpe et al, 2016). For the purposes of this project, these lines represent the state of my imagination of the far future with respect to climate change. The horizontal line represents time while the vertical axis represents the prevalence of the pattern, indicating how dominant the associated mindset is at certain points in time (Sharpe et al, 2016). Based on descriptions from Sharpe et al (2016), table 3 summarizes five key areas of the framework within the context of my project.

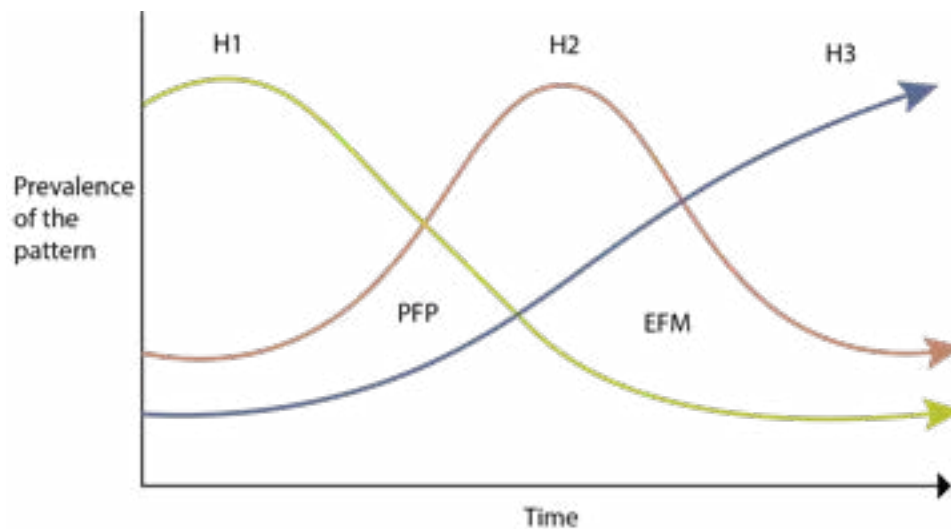


Figure 1: Three Horizons framework (adapted from Sharpe et al, 2016)

2. The Project

Research Approach

Table 3: Contextualization of the Three Horizons framework

Framework Area	Description and Contextualization
Horizon 1 (H1)	The first horizon (H1) represents established patterns, or the business-as-usual state. In the case of this project, H1 is the state of my imagination at the outset of the project, which happened to be quite dystopian in nature.
Horizon 3 (H3)	The third horizon (H3) represents emerging patterns that lead to the future state. For my project, H3 is a desired future state of my imagination, that is, a more empowered perspective about my future within the context of climate change impacts.
Horizon 2 (H2)	The second horizon (H2) represents transitional patterns and activities in response to the transition from H1 to H3. In H2, I explored new concepts and themes that might lead to feelings of empowerment when imagining my far future.
Pockets of the Future in the Present (PFP)	Pockets of the Future in the Present are examples of activities, practices, and patterns that have already emerged, albeit only at the margins of the current dominant approach, that offer pathways or leverage points towards the H3 state. For the purposes of this project, I examined the creative endeavours I was concurrently engaged with for examples of how my imagination might already be shifting towards empowerment and action.
Essential Features to Maintain (EFM)	Essential Features to Maintain represents aspects of the current state that will persist into the third horizon. While this is an important area of the framework, it played a lesser role in my project. Naturally there would be aspects of the present state of my imagination that I would want to carry forward into my H3 (such as adaptability, problem solving, etc), but because I felt it was most important to move beyond the disabling dystopian world of my first two rounds of photos, I focussed on the areas of the framework that were most likely to help me transform the current state of my imagination.

2. The Project

Research Approach

As proposed by Sharpe et al (2016), I used 3Hs to help me push my imagination from a mindset to a more empowered and flexible perspective of the future. After reflecting on my first and second rounds of photos, I realized I had created a dystopian collection of photos. Not only did this represent only one possible future, but it also did not allow me to reflect on how I might avoid that future. I used the framework not to explore a desired future state of climate change, but rather a desired future state of how I imagined the future and my future self within it. More specifically, I used concepts like 'H3' (i.e. the desired future) and 'Pockets of the Future in the Present' to push my imagination from dystopian themes to empowering ones in my final round of photo-making.

Autoethnography

Leading myself through consistent and conscious thinking about how my life might unfold amidst increasing climate change impacts presented an opportunity to discover thoughts, feelings, and phenomena that might not have been extensively researched, or at the very least, to look at them in novel ways and within new contexts. I captured these in the form of written texts that include reflections on the context in which the photo was created, the photo-making experience itself, and my thoughts upon reviewing the photos I created.

My desire to engage in autoethnography aligned well with what has been suggested by researchers as the main purposes of the method. These include utilization of personal experience to both complement and fill gaps in existing research, the articulation of insider knowledge of an experience, and the creation of more accessible texts that reach beyond primarily academic audiences (Adams et al's, 2017). In a discussion of the ethics of autoethnography, Lapadat (2017) offers further benefits of the methodology that also support my research intentions. Of particular importance is the fact that it avoids the power imbalance between the researcher and subject, which is an important consideration when photographing people. While it is possible to anonymize the identities of survey and interview participants, it is much more difficult to do so with photographic subjects. While I see value in eventually photographically documenting others' imaginings of the future, it was important that I first experienced the process with myself as the subject to better understand the nuanced personal vulnerabilities such an exercise might produce.

Literature Review

I aimed to further the idea that the literature review is a 'creative inquiry' (as termed by Leitte et al, 2019). In a discussion of the purpose of literature reviews in dissertations and theses, Leite et al (2019) state the literature review "is not an isolated section of the thesis/dissertation or a copy of the background section of a research proposal" (n.p.). Instead, it is meant to serve a range of purposes from identifying existing research, and highlighting gaps within it, to connecting theory with practice (Leite et al, 2019). In the latter I saw an opportunity to bring my literature review into closer contact with my primary research, and as such, I chose to use the photos and reflections as a guide for my literature review. In this way, the literature review is as much an outcome of my research as it is a discussion of existing research.

Systems Thinking

To define the boundaries of the 'creative inquiry', my literature review also benefited from a systems thinking mindset. In their checklist, Leite et al suggest that the first step in developing a literature review is determining the criteria for including and excluding literature in the review. Considering the broadness of my topic and the ambiguity of future thinking, it was important to focus my inquiry on what was most relevant to my own emerging experiences. To this end, I used systems mapping principles to consider the greater context in which future thinking occurs. In particular, I leaned on the concept of "Understanding the System" described in the Systemic Design Toolkit (systemicdesigntoolkit.org) as a step in which one sees "how the variables and interactions [of a system] influence the dynamics and emergent behaviour." (Systemic Design Toolkit, systemicdesigntoolkit.org). To this end, I modified the the STEEP-V framework (Social, Technological, Environmental, Economic, Political, Values), a tool used to consider and organize influencing factors, to STEEPP-C (Social, Technological, Environmental, Economic, Political, Psychological, Cultural) to capture more of the personal factors emerging in my autoethnography and concurrently evolving literature review. Specifically, the "Psychological" category was added to capture mental processes and behaviours associated with future thinking, and the "Environmental" category was adapted to represent the neurological environment (i.e. the brain) in which future thinking takes place.

2. The Project

Research Approach

Figure 2 illustrates categories of factors that I considered in the project's early stages (i.e. research cycle 1). The biggest circles denote the most prevalent topics in my initial reflections and secondary research which became the boundaries of my project. While the other categories (economics, politics, and technology) are important in future thinking, they seemed to play lesser roles in the future thinking I happened to be engaging in at the time. In a different context, or if I had used a different technique to explore my imagination, these may have been more prominent. Likewise, a different person using similar techniques may have had more pronounced experiences of these other factors. For example, those experiencing economic hardship and/or racial or gender inequalities, economic and political factors may be more dominant. This is another argument for the inclusion of more perspectives in both the practice and research of future thinking.

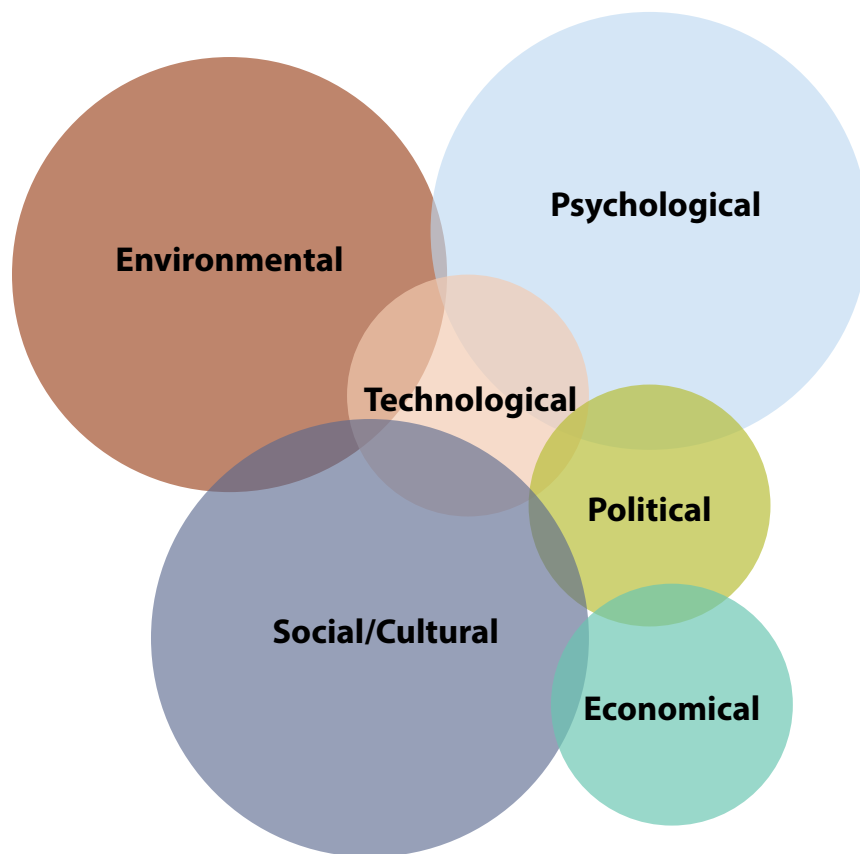


Figure 2: Literature Review Boundaries

3. OUTPUTS

OVERVIEW

The project outputs are the photos, autoethnographic reflections, and corresponding literature reviews.

As more photographic and autoethnographic materials were produced, the three methods described in the previous section became intermeshed. To make the results easier to digest, they are organized according to six themes that emerged within the autoethnographic reflections. These themes are: The Future Self, Aging, Conceptions of Time, Self-Transcendent Experiences, Vividness, and The Role of Memory. Each themed section includes:

1. Photos - Single photo or pairs of photos with title(s) and description(s).
2. Autoethnography - The autoethnography encompasses a contextualization of each photo and accompanying personal reflection. In these I document the larger context in which the photo was made, the experience of creating the photo, and challenges that came up during that process.
3. Literature Review - Reflections are followed by a discussion of related existing neurological, psychological, and sociocultural research.

THE FUTURE SELF & AGING

THE FUTURE SELF & AGING

Photo 1: Protection



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In this world, extreme heat waves have become the norm in the previously mild climate of the West Coast of British Columbia. They typically begin in April and persist until mid October, with temperatures reaching above 45 degrees Celsius. Metal objects become dangerous to touch in the heat. While many have upgraded their vehicles to ones with “cool touch” technology, I can’t afford the upgrades so I use oven mitts to protect myself.

Context

When I imagine climate change, the first thing I think about is heat. In Victoria, British Columbia, where I lived temporarily at the beginning of the project, truly hot sunny days are few. Summer is like a fleeting relief from seemingly endless grey days. There are joys that only summer can bring: long warm evenings, the freedom of leaving home in a t-shirt and shorts, abandoning umbrellas for days or even weeks at a time.

On warmer days I tasked myself with taking note of the heat: my first detections of warmth in the morning and how it rises slowly at first and then sharply after midday. I hoped my little apartment would fill up with warm air and become stuffy like my aunt said it would. On a few occasions it does, and when this happens, I tap into the sensations it produces in me to spark my imagination. What might it be like to live in this city if the temperatures regularly soared above 45 degrees Celsius, I wondered?

As I complete this project nearly a year later, British Columbia is experiencing a historic heatwave. The temperatures I was imagining when I created this photo seemed highly improbable for several more years. On June 27, 2021 what I imagined had become a reality with Lytton, BC breaking the Canadian heat record at 46.6 Celsius. While I am no longer in BC experiencing this weather, I feel a sense of loss in terms of the time I thought we had before we would start having these experiences.

Reflection

Early in the project I debated who the subject of my future images should be. Since I happened to be in Victoria, British Columbia where most of my extended family lives, I initially considered asking them to be subjects so that I could focus on setting up the scene and operating my camera.

For this photo, I asked one of my aunts to be the subject while my uncle assisted with lighting and I directed and photographed. When I reviewed the photos I created from that day, I felt that I managed to capture my imaginings of a nuanced experience of extreme heat, but something was missing. Even though I imagined the scene and created it according to my vision, I did not feel a personal connection to the moment depicted in the photo. When I looked at the details of the image, I found that aspects of it, such as the texture of the inside of the oven mitt and the awkwardness of grasping the car door through the thick material, were unknown to me. Someone else had experienced these, not me. This experience led me to investigate the importance of personalizing imaginings of the future and to explore the concept of the “future self”.

Another experience that came up early in the photo-making process was around the concept of aging. When I talked to friends and family about the images I was creating I would often get asked how I was going to convey my own aging. I avoided the topic in the beginning of the project. I found myself too uneasy thinking about my own aging in addition to the uncomfortableness of climate change impacts and the general ambiguity of the far future. At one point I told myself that having older family members in my photos could substitute my own aging. My logic was that in addition to being related to me, they were between 10 to 30 years older than me, which is how much older I would be in the future horizon I was considering. While I quickly abandoned this idea, it began my exploration of the potential impacts of societal attitudes on aging on foresight activities.

Literature Review: The Future Self

Intuitively I felt a need to make myself the subject of my own imaginings of the future, and thus of the images I produced. Looking at other people in my photos, even if there was no face and the body part I was looking at was similar enough that I could pretend it was mine, was too impersonal for the future thinking experience I had in mind. The following explores the nature of the connection between our present and future selves, and how that relationship impacts our decisions and behaviours in the present.

The Future Self as a Neurological Stranger

Neuroimaging studies have consistently found that particular areas of the brain are associated with self-referential thinking. Specifically, activity in the medial prefrontal cortex (MPFC) is notably different when we think about ourselves compared to when we think of others. Thinking about ourselves produces activity in this area but when we think about others, activity decreases (Hershfield, 2011). If temporality is also introduced, neurological patterns tend to change again. When research participants are asked to think about themselves in the far past or far future, MPFC activity decreases to levels that are expected of participants thinking about another person (D'Armentano et al, 2010). This suggests that thinking into the future or past produces a self that we do not as readily associate with ourselves. This is increasingly true the further away from the present that we try to think (Hershfield, 2011).

Intertemporal Choice

The future self as a "stranger" may have important impacts on intertemporal choice. Intertemporal choice is essentially decision-making in the present that influences the availability of choices in the future, or put another way, it has to do with willingness to make choices that require immediate sacrifice to secure future benefits. In a study exploring these relationships, Hershfield (2011) used temporal discounting (i.e. the assignment of higher value to present rewards compared to future rewards) to measure the impact of the stranger-ness on intertemporal choice. Results indicated that when there was a large difference in the neurological patterns between when a participant thought about their current and future self, they also opted for smaller present rewards rather than holding out for larger future rewards. In other words, temporal discounting was higher among these participants.

3. Outputs

The Future Self & Aging

This tells us that the more a person thinks of the future self as an “other”, the less likely they are to care about or make efforts to reward that self. This aligns with Hershfield’s (2011) discussion on intertemporal choice with regards to money saving behaviours that notes people often treat their future selves as a different person and use similar processes as they would to make decisions for others. This aligns with a statement in Suddendorf & Redshaw’s (2013) review of the development of episodic foresight in young children: “[it is] identification with one’s future self that is critically important for episodic foresight, as one needs to care about one’s future in order to motivate current actions aimed at securing future well-being or preventing future harm” (p. 139).

Literature Review: Aging

In a discussion of mental time travel as a selective advantage in humans, Suddendorf & Corbalis (2007) offer a succinct summary of what it takes to engage in this kind of activity: "This foresight requires several sophisticated cognitive abilities, is resource intensive and error-prone, and induces new kinds of mental stress, not the least of which is the knowledge of inevitable death" (p.311). In the following I will discuss how age and the mere idea of aging can impact our ability to engage in future thinking.

A New Skill

Only a few generations ago, it was still uncommon to live much past the age of sixty. Therefore, up until recently, thinking about one's 70s, 80s, and 90s was an unnecessary activity for most (Hershfield et al, 2011). This means we are still very new not only to considering the lives of the oldest adults in our communities, but also our preferences for our own "elderly years". The American Future Gap report corroborates this with findings of different frequencies of thinking about the far future in older adults compared to younger adults. While it is understandable that older adults might not regularly think as far as 30 years into the future (according to the survey 75% of seniors rarely or never think 30 years into the future), they also found that 51% of seniors report that they rarely or never think even 10 years out, compared to 36% of all respondents (Institute for the Future, 2017).

According to McGonigal (2017), common responses from seniors about why their engagement in future thinking is limited are along the lines of "I don't expect to be alive then, so I don't think about it." This echoes my own first experience in attempting to engage my colleagues in a foresight exercise; those who could not see themselves alive at the end of the time horizon simply did not participate. But this is not the only effect that age has on participation in foresight activities.

Societal Attitudes on Aging

One does not need to be senior or elderly to be affected by the psychology of aging. I can easily imagine that I will still be alive in 20 to 30 years, and yet, I find myself only wanting to think about how the world around me will change, not how I will have changed. Understanding my aversion to imagining myself as an aged adult when I am still several decades from that age, can be explained by looking into societal attitudes on aging. Despite increasing longevity and rising support to fighting stereotypes, aging is still largely viewed negatively, particularly in Western culture. According to McCanatha et al (2003) "aging remains a difficult process fraught with fear and anxiety" (p. 213). Furthermore, they explain that denying one's own aging experiences may lead to a distancing of oneself from one's aging self. We are already aware that the further into the future we think, the more we see ourselves as strangers. This not only fits well with our understanding of what is happening at a neurological level, negative attitudes on aging may in fact be exacerbating this particular brain default setting.

Early Internalized Stereotypes

Evidence on when negative age stereotypes start to affect our thoughts and behaviours can be found in health-related research. In a study on attitudes on aging and cardiovascular events later in life, Levy et al (2009) found supporting evidence for their own past findings on the effects of internalized age stereotypes and how early in life these stereotypes are in fact internalized. They not only found that age stereotypes held earlier in life predicted cardiovascular events in later life, but also that age stereotypes are internalized decades before one reaches "old age". One does not need to be an older adult, or even nearing old age to be affected by negative attitudes and stereotypes of aging. From what we know about how early these are internalized, it is reasonable to assume that even people in their 30s or 40s (like myself) may feel distressed by foresight exercises with time horizons that require them to consider themselves as having reached what they might consider "old age".

CONCEPTIONS OF TIME

CONCEPTIONS OF TIME

Photo 2: Restriction



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Wildfire season has expanded in line with heatwaves, meaning that summers on the West Coast are no longer associated with sunshine and camping, but instead hazy skies and poor air quality. Despite increasing restrictions brought on by climate change, my outdoorsy spirit lives on. I now most often experience paddling as an indoor activity enhanced with virtual reality.

Context

The summer of 2020 was a record-setting wildfire season in California. With close to 10,000 fires burning 4 million acres, the smoke made its way up to where I was living in Victoria, BC. This wasn't the first time I experienced a claustrophobia-inducing orange haze. I was living in Vancouver when BC had its own series of record-setting wildfire seasons in 2017 and 2018. While the California smoke wasn't as intense as it was in 2017 and 2018, this experience felt more complicated.

When the haze arrived, Wave 1 of the pandemic was declining. Our government okayed meeting up with friends and family outside, but we were still not able to be with each other indoors. The combination of relaxed restrictions and warming weather was finally offering relief from months of isolation. When air quality deteriorated, we were advised once again to seek shelter indoors, this time with windows closed. In an already complex pandemic, we had to make yet another choice: face the heavy air outside together or go back inside and be alone.

3. Outputs

Conceptions of Time

Photo 3: Constriction



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The lakes around Toronto are contaminated with biological and chemical waste, and therefore are no longer usable for recreation. Additionally, housing crises in large cities from the beginning of the century never let up resulting in mass poverty among Millennials and Gen Z. Despite having post grad education and a job that used to be considered well-paying, I cannot afford personal entertainment beyond cheap virtual reality experiences.

Context

After seven months in Victoria tending to a family emergency (and death), I decided to move back to Toronto. The timing of my return coincided with a resurgence in Covid-19 cases across Canada. By the time I arrived in December 2020, Wave 2 was in full force and the city was under severe restrictions, which only increased as we headed into the new year. When I made the decision to move two months prior, I knew there would be a Wave 2, but I hadn't planned on the extended dystopia that carried through the winter and transformed into a crushing Wave 3.

Moving back to an uncertain Toronto was fuelled by a sense of loss for the adventure I had embarked on when I first moved from the West Coast for my masters program. While I was safe in Victoria among family and could have easily resettled in Vancouver where I still feel the most at home, I wasn't ready to settle back into the familiar. Despite the blows of pandemic life and losing a family member amidst the global crisis, my desire to push my limits, learn, and explore endured. To carry the adventure forward, I would have to embrace uncertainty and discomfort in a way that I had not before. Loss of personal control and freedom due to increasing pandemic restrictions provided access to emotionality that I thought might be akin to what I would experience in a climate crisis. I imagined in a climate crisis that my daily life would be similarly restricted, and, like the pandemic I would have very little ability to change my circumstances.

I waited for a sunny day in February to create this photo. The temperature was tolerably just below zero degrees Celsius. I quickly set up the shot according to plans I made during the week. My roommate held my parka and pressed the shutter for me. I can clearly recall the shock of cold on my skin, cars driving right up beside me, and the prickle of the frozen ground under my bare feet.

Reflection

Living in Victoria with access to a car and many nearby lakes meant I could truly justify having a paddleboard. As a result, I spent many evenings on the lake, something I always hoped I would do. When I thought about what I would be doing in the future, I initially figured I would be doing even more of this. Barring any serious medical issues, this is something I could still easily do when I'm a few decades older. I felt confident about this as I watched my mom paddle speedily with ease on our many outings that summer.

Despite my confidence in my future abilities, I started to have a feeling that paddle boarding was not something I should plan on. Even in the adapted state portrayed in my photos, it still somehow felt improbable. The more I thought about it, the more it became clear that the discomfort I felt with the images wasn't about the activity or how I was adapting it, but instead, it had to do with the act of engaging in the leisure time associated with the activity. But why? Wouldn't I still want to do something like this, even if it wasn't exactly the paddle boarding I was doing now?

I began to have a nagging feeling that I shouldn't plan on personal leisure time in the far future. The complexity of increasing climate change would surely come with increased personal responsibilities. I saw myself needing to make more time to care for others, and since it's hard to know what might be needed, the only thing I felt I could really plan on was having less time to pursue activities I enjoy.

The conversation I had with myself went something like this:

"But you'd still want to pursue some form of recreation even if you had to adapt how you did it, wouldn't you?"

"Well yes, ideally. But I can't just turn off everything that's happening around me and go off for an hour or two."

"Why not?"

"When life is hard, things come up and you have to be present and ready to help."

"Like you're on call?"

"Yes, someone might need me. You can't just get that kind of work done and then go off and do what you want. You have to stick around for however long it takes."

Literature Review

The realization that I didn't feel like I fully own my future time led me to investigate different understandings and experiences of "time". My overall goal was to understand how we might imagine managing our time in an increasingly complicated climate impacted world. With a focus on comparisons to the default Western conceptualization of linear time, the following explores variations in how time is conceived, experienced, and put upon us.

Sexual Division of Temporal Labour

While linear time sees us as marching forward with our ancestors behind us, this is not so of other conceptions of time. For example, cyclical temporality "refers to various ways of experiencing ourselves in the world as participants within narratives involving our ancestors and descendants" (Chisholm Hatfield et al 2018, p.3). Chisholm Hatfield et al (2018) illustrate this concept in their discussion of time, seasonality, climate change, and traditional ecological knowledge with the example of South American Aymara speakers. For them, because it is unseeable, the future is considered to be behind a person. The Maori perspective of time holds a similar positioning of the past, present, and future: "whakataukī – Kia whakatōmuri te haere whakamua ('I walk backwards into the future with my eyes fixed on my past')" (Rameka, 2016, p.395).

The sexual division of temporal labour can be understood by comparing how linear and cyclical time conceptions are articulated, and how they are often attributed to maleness and femaleness in Western culture. In a discussion of the limitation of both of these time models in making change possible, Fanny Söderbäck notes that linear time is associated with qualities such as transcendence, progress, production, and creation and thus thought of as inherently masculine (Tyson, 2021). In contrast, cyclical time is spoken about as being repetitious, reproductive, and procreative and is associated with female embodiment and subjectivity (Tyson, 2021). Regardless of whether the two models are seen as oppositional or complimentary, when compared with each other, Söderbäck argues that they cast women as "sort of stuck in the cycles of nature" (9:22), while promoting men to strategic and future oriented roles (Tyson, 2021). This unspoken categorization may have subtle impacts on how confident and included women feel when they engage in future thinking and foresight exercises.

Temporal Relationships

The types of responsibilities and how we manage them impacts how we experience time. In a study of the practices and experiences of working sole parents through a feminist lens of time conceptualization, Nockolds (2017) describes the differences between three temporal relationships: clock time, process time, and relational time. Clock time is easily measured and, like the concept of linear time, is viewed as moving forward from a beginning to an end. On the other hand, process time is embedded in social relationships and has much more to do with meeting needs, and the processes required to achieve this (Nockolds, 2017). Process time does not fit nicely into a linear framework, as it cannot be assumed that spending more time on a process will gain desired results. For example, caring for children as a parent or guardian does not begin and stop at specific times (like it might for a babysitter), and putting more hours into any specific parenting task does not necessarily bring you closer to the end of your responsibilities.

Those with heavy caring responsibilities or expectations of performing future care can experience a different relationship with time. The temporal relationship in this case, often still using the clock to stay organized, can be more strongly tied to tasks that do not have a clear end point, than to minutes that tick by unconnected to the ultimate goal (Nockolds, 2017). Contrast this to a temporal relationship strongly dictated by the “clock” that might look like this: a paid workday that starts and ends at a specific time, and a homelife focussed on projects with clear end point, in which the number of hours can be reasonably predicted (e.g., lawn mowing, fixing a broken item, taking out the trash). When there is a strong emphasis on caring for others, the temporal relationship can be experienced as “relational” to others (family, community, etc). As such, those with heavy caring responsibilities may see their personal time as something that can be drawn upon by others (Nockolds, 2017). Understanding this temporal relationship gave me context to begin to explore why I questioned if I would continue to pursue “selfish” recreational activities (such as paddle boarding) in the far future. It would not be as simple as my interests, abilities, and the physical environment determining my activities, but as the world becomes more complicated in the next 20 to 30 years, it will also heavily depend on who needs me.

SELF-TRANSCENDENT EXPERIENCES

SELF-TRANSCENDENT EXPERIENCES

Photo 4: Relief



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Because of ongoing needs of my family and the persistent housing crisis, I find myself in the same studio apartment I landed in when I came to Victoria in the summer of 2020. The old apartment building hasn't been upgraded much in terms of ventilation, and I still don't have air conditioning because electricity rates have become unaffordable. When it gets really hot, my only escape is a few minutes inside the fridge. When it gets really hot, I lose my appetite. I often eat my meals like this so that I feel cool enough to want to eat.

Context

Opening a fridge door to cool down seems to be a universal experience. When I show this image to others they often chuckle and say "Oh, I've done that before." In making this photo I wanted to consider how it would feel if this was more of a necessity, or even a lifesaver, rather than just a momentary indulgence.

As this was one of the few images in which my entire face would be visible, it was an opportunity to attempt to convey what I imagined might be the emotional aspects of climate change. I once again sought out sensations to help guide my response to what I was imagining. While it wasn't a particularly hot summer when I created this photo, I still waited for a warm day to get into the frame of mind of experiencing heat. I also strategically dampened my clothes where I would normally sweat and beamed light with a reflector into the scene to further engage my senses.

3. Outputs

Self-Transcendent Experiences

Photo 5: Escape



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Poor air quality is the norm in most parts of the world, especially in the summer. Travelling to exciting places for “summer vacation” is rare now. The “staycation” has evolved from trendy to necessity as most holidays are now enjoyed at home, literally. At least once every summer, I set up my apartment to resemble a hotel and I spend time on my deck in vacation clothes that I don’t otherwise wear.

3. Outputs

Self-Transcendent Experiences

Context

International travel restrictions that were lifted in the summer of 2020, were quickly reinstated after Covid-19 cases resurged starting in September. As we headed into the fall on the West Coast, even local travel, initially inter-provincial, and eventually inter-regional, became restricted to essential travel only. These cycles of easing and worsening travel restrictions emboldened a sense of living in the now. In the summer, I managed a few short trips to the mainland to see friends and family and to the west coast of the island to visit a favourite spot. When cases began to climb again, and it seemed inevitable that we were heading into another long and lonely period, I made a last trip to say goodbye to friends in Vancouver. After that, any “getaways” or breaks would have to happen within the limits of the small city I was inhabiting.

Reflection

While these two photos are attempts at expressing different imagined outcomes of climate change, the photo-making of this pair produced similar experiences. In Photo 4, I imagined extreme heat and how that might look behind the scenes in the quiet of my apartment. In Photo 5, I imagined how I might adapt to unsafe conditions (air quality, floods, unpredictable weather patterns) that make leaving one's own home unfavourable. While there is a certain amount of narrative and performance in all my images, these two were especially a product of a story that I fabricated prior to execution.

When I was exploring the possible impacts of extreme heat on my daily life, I started to consider how those conditions might play out in the space I was currently living in: a small studio apartment in Victoria, BC. When I moved there in May (when my father's health began to rapidly deteriorate), I had it in my mind that it would be temporary. I found it challenging to feel a personal connection to a specific home that I did not intend to live in for more than a few months. To connect with the space into the future, I needed to consider why I might still be living there many years into the future. And so, to create Photo 4, I constructed a story that not only kept me in place 20 years into the future, but also stabilized the conditions of the apartment over that period (i.e. no improvements to ventilation or addition of air conditioning). I carried over reasons for continuing to live in the apartment from Photo 4, and then developed a substory to explore the concept of vacationing at home for Photo 5.

I let myself live with these stories for a couple of weeks before attempting to execute the photos. This period served as a sort of character study, mental dress rehearsal, and lighting study for the eventual moment of photo-making. For both of the photos, I waited for desired conditions (e.g. light, weather, heat, etc.) to come together to set the stage upon which I would perform the stories. The natural light I needed to pull off the photos was a particularly important factor. This was especially true for Photo 5 in which the fleetingness of the sunset enhanced the sense of performance. Like a play, the setting sun was like the opening of the curtains; once this happened, my focus could not stray until either I got the shot I hoped for, or the light ran out.

Literature Review

My experience of combining story, performance, and strong focus seemed to produce in me a well-researched subjective phenomenon known as “flow”. While I have experienced this state before, I had yet to experience it in this project or, as far as I can recall, any other previous future thinking activities. A hallmark of the flow state I experience is a distorted temporal experience in which it seems that time is passing much more quickly than expected (Nakamura & Csikszentmihalyi, 2014). The fact that a flow state offers an alternative experience of time led me to investigate how self-transcendent experiences (STEs), might be leveraged in mental time travel. I wondered if it was possible to use STEs to help us engage with our future selves such that we more readily see ourselves as continuous in time.

Neurology of STEs

Self-transcendent experiences (STEs) are characterized as a decreased sense of self importance along with increased feelings of connectedness with others and/or the environment (Yaden et al, 2017). These types of experiences appear to be common across cultures (Yaden et al, 2017) and have been noted in a variety of activities including mindfulness (Yaden et al, 2017), meditation (“This is your brain praying”, 2004), flow (Yaden et al, 2017), awe (Yaden et al, 2017), religious prayer (Newberg, 2010). An exploration of how these experiences come to be at a neurological level offers insights into how they might be useful in future thinking activities.

Two complementary subcomponents have been proposed as a framework for understanding STEs: annihilation and relation. The annihilational component refers to the “dissolution of the bodily sense of self accompanied by reduced self- boundaries and self-salience” (Yaden et al, p.145) while the relational component refers to the “the sense of connectedness, even to the point of oneness, with something beyond the self” (Yaden et al, p.145). It has been proposed that the frontal, temporal, and parietal lobes are all involved in producing the subcomponents of STEs (Newberg, 2010). While the frontal lobe mediates social behaviour and the temporal lobe enables abstract thinking (both of which are key to cognitive processes in STEs) (Newberg, 2010), the parietal lobe seems to mediate the sense of self/other overlap (and thus annihilation and relation) (Yaden et al, 2017).

3. Outputs

Self-Transcendent Experiences

The parietal lobe is critically important in STEs because of its role in orientating the self with others and the environment. Focusing on one source of sensory input leads to deprivation of other kinds of information and shuts down orientation association areas in the parietal lobe “which gives us our sense of where we begin and the world ends” (“This is your brain praying”, 2004). The decrease in neural activity that causes a decreased sense of separateness may also provide a temporary reprieve from thinking intensely about the self. In a sense, when we experience an STE, we also get a temporary break from the fears and anxieties about our physical and social selves that typically pervade our minds (Yaden et al, 2017). A break from anxiety may open up some capacity for unburdened, and thus more positive, engagement with our future selves.

Flow State

Flow state typically happens when a person is engaged in an enjoyable and challenging activity in which they possess a high degree of skill. Like other STEs, flow brings about a faded sense of self during the period of engagement and a connectedness with something other than the self, in this case the activity itself (Yaden et al, 2017). Flow is further described as a “phenomenon of intrinsically motivated, or autotelic, activity” (Nakamura & Csikszentmihalyi, 2014, p.89), that is, activity in which the reward lies in the doing, not the end product (Nakamura & Csikszentmihalyi, 2014). In addition, flow state tends to include feelings of seamlessness of action, a sense of being able to respond to whatever happens, and a distorted sense of time (i.e. time quickly flying by) (Nakamura & Csikszentmihalyi, 2014). Interestingly, despite an intense focus on and tight connection with the activity being performed, experiencing flow with other people has been reported to be even more enjoyable than experiencing it alone (Yaden et al, 2017). Taken together, the elements of flow described in the literature seem to offer opportunities to shorten the gap between the present self and future self, possibly making the future self seem like less of a stranger.

VIVIDNESS

VIVIDNESS

Photo 6: Breathe



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Many older homes haven't been upgraded to resist extreme smoke. During the worst of the wildfire season, smoke creeps in and it's necessary to wear masks indoors. I've become used to wearing heavy masks outdoors, but wearing them indoors still feels suffocating. During the really bad days, I try to find activities that are calming and repetitive to pass the time.

3. Outputs

Vividness

Context

Like Photo 2, this image was inspired by the smoke from the California wildfires that drifted into BC in the summer of 2020. The smoky skies seemed to shrink the space above and around us. Having an experience to draw upon made it easy to extrapolate to the future by simply intensifying what was already happening around me.

I originally attempted to create this photo in my apartment, but I wasn't happy with what I managed to produce on my own. The activity at the center of the image was not very important, yet knitting as a relaxing pastime needed to be clear in order to set up the feeling I hoped to convey. The feeling I wanted was "tension", and to get there I needed to simultaneously imbue stillness, haziness, encroachment, resistance, and calm. In the end, I managed this by bringing in other physical elements (a different living room and a smoke machine) and got help with the timing and execution. Of the ten photos included in this report, this is one of the four I made with help from other people.

3. Outputs

Vividness

Photo 7: Growth



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With heatwaves persisting into the fall, the growing season has also been extended. It's often not possible to garden in the hottest months, so most have switched to tending autumnal gardens beginning in late September. I look forward to this time of year when the weather has cooled enough that it's enjoyable being outside in the late afternoon and early evening.

3. Outputs

Vividness

Context

In the fall of 2020, I spent the afternoon at a family member's home creating photos. We (my family member photo assistants and I) had just finished trying to create several scenes, including Photo 6 and a few others that didn't work out as well. At the point when we started to work on this photo, I was happy enough with what we managed to produce that day and felt that anything more would be a bonus. We still had about 30 minutes of natural light to work with and I wanted to squeeze in something spontaneous and playful.

This is the only photo included in the series that was not heavily pre-meditated. While it was not conceived of ahead of time, it is still a result of iterating on previous attempts to convey the subtleties of poor air quality.

Reflection

At the beginning of the overall photo-making process, I came to understand that my photos needed to be as personal as possible. This discovery came from regretting the fact that I didn't personally experience opening the car door with the oven mitt. Looking back on Photo 1, I realized I was missing some of the sensations that would help me remember and connect to that moment. For Photo 6 and Photo 7, I sought to further that connection by adding physical and emotional dimensions that I would experience during the photo-making process and, hopefully, again when I viewed and reflected upon the images once they were created.

For Photo 6, adding physical elements helped bring about my emotional intention for the image. It was important to me to bring the smoke I had experienced from the wildfires into the photo-making process in a tangible way. So instead of creating an effect with digital tools after the fact, I opted to use a smoke machine while photographing. The discomfort of sitting in a room filled with smoke and labouring to breath through a particulate mask produced an internal tension as I forced my body to relax for the photograph. By doing it this way, I didn't have to try to imagine and act out the tension I sought to convey in my photo, I could just experience it and capture it. Giving myself a visceral experience also meant that my memories of creating that photo are emotionally charged. Even as I recall it today, I can easily re-experience the feeling of the plastic of the mask on my face, the condensation building up inside it, and how it felt to take in breaths of smoky air when I removed it between shots.

Making Photo 7 is also memorable in large part due to emotion. In the moment of making this photo, I was craving a break from the serious themes that had been dominating my imagination. I wanted to be playful. I still intended to create an image about worsening air quality, but I also wanted to engage with the topic from a different angle. Even the most dystopian futures would not be without some degree of levity and humour, and after creating several other images, I was finally open to exploring this side of the emotional spectrum. The inspiration for this photo came from the garden gnome that usually sat on top of my aunt's fridge. Engaging with an unexpected prop, especially for a photo in which I involved others, produced an image that immediately conjured in me memories of laughter, spontaneity, and the joyfulness in collaborating with others. Eliciting more positive emotions in the context of imagining my personal future helped me see my future self as a more well-rounded person with a personality that I was more eager to continue to try to connect with.

Literature Review

Early on I felt a strong instinct to include more sensation in the photo-making part of my future thinking experience. That I can recall how things felt physically and emotionally when I made the experience more vivid indicated that I was connected to those experiences in a different way than when I was more focused on how the photos would look. I wondered about the impact of bringing my imagination of the future to life in the most vivid way possible and if this could enhance my ability to connect with my future self. In the following I discuss how elements of vividness can both help and hinder future thinking.

Emotion, Personal Significance, and Temporality

The vividness of recalled past and imagined future events is affected by temporal distance. The further from the present we attempt to mentally time travel, the more mental images of the past and future become abstract (Suddendorf & Corbalis, 2007; Bulley et al, 2014; Bernsten & Bohn, 2010). Vividness is also an important factor in temporal discounting (i.e. whether we assign higher value to present rewards over larger future rewards) in that it is also related to the degree to which we feel a connection to and act beneficially towards our future selves (Hershfield, 2011). Failing to maintain vivid images of the future self therefore limits our ability to foster a relationship with that self.

Emotion and personal connection are inextricably intertwined and important influencers of subjective vividness, and therefore may offer a path towards making the future self seem more vivid. Episodic foresight, the future-thinking counterpart of episodic memory, allows us to pre-live an event to the extent that we can learn about how we might feel about it before it occurs (Bulley et al, 2014). The subsequent evaluation of those feelings helps us to assign value and desirability to the future event (Baumeister et al, 2016). Emotional stimuli also tends to be remembered with more detail than neutral stimuli (Suddendorf & Corbalis, 2007), and emotional memories that are also autobiographical are associated with increased subjective feelings of mentally reliving a past event (D'Argembeau et al, 2003). Interestingly, people report more feelings of re- and pre-experiencing emotionally positive past and future events than they do for emotionally negative events (Suddendorf & Corbalis, 2007). It seems that imbuing future thinking with emotion, especially positive emotion, may help us to see our future selves more vividly.

Personal Visualization Capabilities

Individual visual capabilities also play a key role in the ability to conjure vivid images of the past and future. Those with “higher visual imagery capacities generate more detailed representations of their personal past and future, and rate their representations of future events as being more emotional and meaningful” (D’Argembeau & Van der Linden as cited in Suddendorf & Corbalis, 2007, p.320). While such a heightened ability can be helpful in connecting to temporally distant events, it has also been found to have an unexpected effect on temporal discounting: participants with higher abilities to vividly imagine future scenarios were less likely to select larger delayed rewards (Parthasarathi et al, 2017). One explanation for this might be that an enhanced ability to imagine vividly can be directed at the both present and future, but yields more advantages to the already vivid present (Parthasarathi et al, 2017). Another possibility offered by the researchers is that visualizing one’s future goals can actually reduce one’s motivation towards these goals. The reason for this is that visualization training might also enhance one’s ability to visualize potential roadblocks, provoking anxiety and avoidance (Parthasarathi et al, 2017).

THE ROLE OF MEMORY

THE ROLE OF MEMORY

Photo 8: Regrowth



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Single use has been outlawed. While these policies were initially aimed at plastics, they now encompass all materials. Even organics are expected to be used again at least once. The lettuce I buy at the grocery store is genetically modified to be easy to regrow at home in tap water. I typically get three new heads of lettuce for each one I buy.

Context

Winter and spring of 2021 were challenging to say the least. Moving back to a city that would not open again until the summer was a reality for which I was not fully prepared. I assumed there would be some incremental gains or at least a break between Wave 2 and Wave 3. The opening of non-essential shops in March and slamming them shut again after only three weeks was a hit to my morale. And later, when Ontario's Premier announced in a new iteration of stay-at-home orders in which police would have the authority to stop and question anyone who was outside of their home, I felt angry and gutted. This and other restrictions were reversed within days, but I was sour, and remained so for months after.

While the world outside my apartment swirled with every uptick in Covid-19 cases, my roommates and I busied ourselves with several domestic experiments. One of these was growing food from seed and regrowing food plants. We researched the best ways to start avocado trees from pits, saved tomato and pepper seeds, and put the remains of lettuce heads in water to see if they would resprout. With little else new in our lives, watching our experiments progress was riveting.

3. Outputs

The Role of Memory

Photo 9: Decomposition



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Fast fashion is highly prevalent, and even mandated by governments. It does not, however, bear any resemblance to what was termed “fast fashion” in the beginning of the century. The “fast” part now refers to how quickly the material will break down, not how quickly the garment is produced. Interest in fashion has switched from consumerism to maker-ism with many clothes now handmade and even homemade. It took me several days to make this leaf dress. I hope to get at least three or four wears out of it.

Context

On a cold night in the winter, my roommate brought home a large, abandoned fig tree. It was in terrible shape but some of its leaves were still green so we were hopeful that we could return it to a better state of health. Despite our efforts, it continued to decline until its leaves and branches were crispy. The leaves still looked rather spectacular so I decided to keep them in case they could serve my project. But perhaps it was more because we had tried so hard to care for the plant that I couldn't just let it suddenly become waste.

For Photo 9, the process began with creating something completely new that I would later photograph. After a few weeks of thinking about what to do with the leaves, my imagination continued to churn around the idea of how materials could be reused to the extreme. I began to wonder what it would look like if "fast fashion" as we know it was flipped such that the fast part was how quickly our clothes could degrade, not how quickly they could be produced. It took a few more weeks of contemplation and conversations with my roommates before I started to recreate what I was seeing in my mind. To create my future fast fashion dress, I hand sewed each leaf onto packing paper that came in a delivery from IKEA.

Reflection

By this point, it was clear that my imaginings of the future were following a dystopian theme. I was using past thoughts, behaviours, and favourite activities as starting points for how I thought about myself in the future. My photos were all about how I would adapt what I was already doing so that I could continue to do it despite what I imagined to be the worst-case scenario. Constantly going back to what I knew kept me in a negative frame of mind, one that I told myself was reasonable because it was realistic.

I had to remind myself that there is not just one future and, from what I learned earlier in the project, that there is not just one point of origin. To get past my dystopia, I needed to incorporate what I had learned about the future self and conceptions of time. This is also when I began to integrate the Three Horizons into my thinking and photo-making.

Using the Three Horizons helped me to begin to consider a future I wanted, not just one that seemed inevitable. A key function of the tool when used among communities and groups is to drive towards consensus around a desired future (Sharpe et al, 2016). In the absence of other contributors, I tasked myself with reconciling how the future could be empowering despite what I know about the present trajectory of climate change. In essence, I was looking to build consensus among the many dimensions of my being: a depressed self, an optimistic self, a disempowered self, an adaptable self, and a self that was highly resisting change. My first breakthrough with the tool came in the form of Pockets of the Future in the Present. Taking note of the experiments in my own kitchen, and in particular the lettuce regrowing its leaves with water alone, I had a feeling I might be witnessing an early signal of an empowering future and a new point of origin that I could begin to draw from.

Literature Review

As I found myself going back to what I already knew to inspire my future images, I became intrigued by how images of the future originate in the brain. It was clear from my experiences that memory was playing a key role in this, and that the “future” was not the blank canvas I originally thought it to be. In this section, I discuss the role of explicit memory in future thinking. Specifically, I explore mental time travel with respect to how it evolved from and is limited by memory, and that, essentially, the future has everything to do with the past.

Adaptive Advantage

Among other characteristics, long-term memory is categorized based on whether it is consciously recalled and the type of information it contains. Explicit memory (also known as declarative memory) is consciously recalled (Kihlstrom et al, 2007). An example of this is recalling the time of a dinner reservation. In contrast, implicit memory encompasses information that is not actively recalled, but is expressed through performance (for example, throwing a ball, dance moves, riding a bike). Implicit memory is further categorized into episodic memory and semantic memory. In episodic memory, we recall specific personal events or experiences (Kihlstrom et al, 2007), for example, a night out celebrating a friend’s birthday. Semantic memory refers to general knowledge and concepts, such as the colours in the rainbow (Kihlstrom et al, 2007).

Researchers argue that episodic memory developed in humans to ultimately support foresight capabilities. Suddendorf & Corbalis (2007) contend that the primary role of mental travel to past events is to provide “raw material from which to construct and imagine possible futures” (p. 32). Considering natural selection acts on an individual’s survival and reproductive chances in the present and future, not the past, being able to generate multiple scenarios of what might happen and subsequently plan complex solutions is greatly valuable from an evolutionary perspective (Suddendorf & Renshaw, 2013).

Future Thinking is Generative

Mental time travel allows imagination of events anywhere along the temporal spectrum. This spectrum includes timeframes in which we have not yet or no longer exist, that is, before and after birth and death (Suddendorf & Corbalis, 2007). Episodic foresight, the process of future time travel, is a highly generative process that is thought to occur through the repurposing of elements from episodic memory (Suddendorf & Corbalis, 2007). Converging evidence has shown that episodic memory and episodic foresight are supported by the same neurocognitive processes (Berntsen & Bohn, 2010). This shared process may explain the sense of “pre-experiencing” produced in episodic foresight that enables us to consider options and evaluate them without the event ever actually happening (Atance & O’Neil, 2001).

While episodic memory is considered the predominant foundational material for future thinking, familiarity of the future event in question impacts the involvement of semantic memory. When research participants are asked to construct future events that are familiar to them, they rely on material from similar events from their past (i.e. episodic memory), but when they attempt to construct future events that are very different from what they know, they tend to draw more from their general knowledge (semantic memory) (Wang et al, 2016). The ability to draw upon both types of memory appears to further expand the limits of how far into the future we can imagine, with the farthest projections of the future pulling from semantic memory when necessary.

Novelty has also been found to be a factor in the extent to which episodic and semantic foresight is used in planning tasks. Patients with dorsolateral prefrontal cortex damage (and thus diminished episodic memory) were found to have difficulties formulating action plans that deviate from routine (Atance & O’Neil, 2001). As such, it has been argued that the first time we face a particular planning task, we are likely to engage in episodic future thinking (Atance & O’Neil, 2001). However, if we are faced with the same planning task repeatedly, we likely engage semantic future thinking in which we apply more generalized knowledge in our decisions. While seemingly similar activities, it appears that constructing a future event is a neurologically distinct process from planning for that event, and in each process the brain draws upon episodic and semantic foresight differently.

Future Thinking is Also Constrained

While future thinking seems to be able to generate limitless future imagined events through endless recombination of memory, future thinking is also considered to be constrained. According to Atance & O'Neil (2001) a future narrative (i.e. episodic foresight) is not constructed freely, but rather it is constrained by the contexts in which it is being projected: "For instance, envisaging my forthcoming vacation might require me to consider such factors as how much spending money I will have, how much work I will have completed before I go, and so on..." (p.533). Additionally, prospection of general knowledge (i.e. semantic memory) can, in turn, be informed by episodic memory in that the latter serves to determine the boundaries or scope within which generalizations are appropriate (Suddendorf & Corbalis, 2007).

Future thinking is also a socially and culturally mediated activity, and as such, it is subject to constraints in these areas as well. When we plan, and thus prospect into the future, we use highly cultured tools such as language, calendars (Baumeister et al, 2016), and life scripts (Berntsen & Bohn, 2010). While these allow us to share our visions of the future, it is thought that cultural life scripts (i.e. cultural expectations of the order and timing of significant life events) "may be especially important for guiding mental time travel across longer temporal distance" (Berntsen & Bohn, 2010, p.277). Life scripts are thought to do so by providing a "culturally transmitted temporal structure" (Berntsen & Bohn, 2010, p.275) that constructs our self-narratives beyond the time horizon in which we normally think (de Vito et al, 2006). Despite their ability to expand our horizons, cultural life scripts also constrain our thinking in a similar way as Atance & O'Neil's (2001) vacation example.

SUMMARY OF FINDINGS

Table 4 provides a summary of key insights gained from the interaction of the autoethnography and literature review. These insights form the basis for the recommendations in the proceeding “Outcomes” section.

Table 4: Summary of key insights

Theme	Key Insights
The Future Self	<ul style="list-style-type: none"> • The neurological stranger: The further into the future we think, the more our brains see our future selves as strangers • Intertemporal choice: The more our brains see future selves as a stranger, the less likely we are to make choices in the present that reward the future self.
Aging	<ul style="list-style-type: none"> • A new skill: Because living into one’s 70s, 80s, and 90s is a relatively recent norm, considering the lives and needs of the oldest adults in our communities is still fairly new. • Societal attitudes on aging: Negative attitudes towards aging that result in denial of one’s own aging experiences may also cause a distancing of oneself from one’s aging self (i.e., one’s future self). • Early internalized stereotypes: One does not need to be an older adult, or even nearing old age to be affected by negative attitudes and stereotypes of aging.
Conceptions of Time	<ul style="list-style-type: none"> • Sexual division of temporal labour: Gendered time conceptions and resulting sexual division of temporal labour may be keeping women from strategic and future-oriented roles. • Temporal relationships: Those who experience relational time (e.g. caregivers) may find it challenging to imagine their own personal lives in the future as they do not yet know how their time will be drawn upon by others.

3. Outputs

Summary of findings

Theme	Key Insights
Self-Transcendent Experiences	<ul style="list-style-type: none">• Neurology of STEs: The decreased sense of separateness experienced in STEs may provide temporary reprieve from thinking intensely about the self, giving us a break from our physical and social fears and anxieties.• Flow state: Elements of the flow state experience may offer opportunities to shorten the temporal gap between the present self and future self.
Vividness	<ul style="list-style-type: none">• Emotion and personal significance: Emotional autobiographical memories are associated with increased subjective feelings of reliving a past event.• Personal visualization capabilities: Heightened visualization abilities present both leverage points and barriers to future thinking and future-oriented action.
The Role of Memory	<ul style="list-style-type: none">• Adaptive advantage: Memory evolved in humans to provide material for future thinking, giving us the adaptive advantage of being able to evaluate and act before crucial events happen.• Future thinking is generative: The combined repurposing of episodic memory and semantic memory allows for mental time travel anywhere along the temporal spectrum, including before and after death.• Future thinking is also constrained: Future narratives are not constructed freely, but rather they are constrained by the contexts in which they are being projected.

4. OUTCOMES

RECOMMENDATIONS

Overview

By connecting my experiences in exploring my imaginings of the future with corresponding literature reviews, I developed five recommendations. I hope these will provide inspiration to those beginning a personal future thinking practice and foresight practitioners attempting to understand the challenges people face when they ask them to think about the far future. The aim of the recommendations is to help myself and others to think more deeply about the future, and to explore personal barriers and leverage points. To do so, it is important to not only reduce initial barriers (such as fears about aging), but also to empower ourselves to connect with the future through different (yet not necessarily novel) ways of thinking.

Recommendation 1 is about getting more comfortable with thinking about the future.

Recommendation 2 is about fighting the abstraction of the future to make it personal.

Recommendation 3 is about giving our imaginations more material to work.

Recommendation 4 is about allowing our imaginations to iterate.

Recommendation 5 is about leveraging the brain's inherent capabilities.

Recommendation 1: It's about experiences and change, not clock time

In a 2021 podcast, Damhof tells the story of a time when she asked a group of designers if any of them brought elderly participants into their sessions (Badminton, 2021). In a room full of people only one hand went up: a designer working with Indigenous communities. Damhof goes on to say that the inclusion of older people is important for many reasons, including that they have a different relationship with the future compared to young people, and because there is not just one future, we need all these different perspectives (Badminton, 2021).

1a. Hold positive view of your own aging and the aging of others

Unfortunately, despite knowing that we need these perspectives, future thinking in older adults is especially low (Institute of the Future, 2017). Facing one's own inevitable death is a compelling reason to avoid thinking about the future. Furthermore, the requirement of sophisticated cognitive abilities and the resulting mental stress these can produce (Suddendorf & Corbalis, 2007) could easily lead those starting to experience cognitive declines to feel they should not bother. These perceived stressors might also lead to those in charge of foresight projects to not seek out older adults for fear of distressing them and/or because they consciously or unconsciously assume they lack abilities in this kind of thinking.

While there are no simple fixes around attitudes towards aging, any strides in this area would be highly beneficial to the recruitment of older people in foresight activities. In Western culture this will truly require a paradigm shift. Perhaps the shift could start among foresight practitioners who understand and promote the value of including people of all ages, and especially older adults in their work. The "semantic rut", in which most decisions are made based on semantic memory (i.e. rules, overarching principles, etc.), can be balanced out by including people with fewer life experiences who still find new events surprising (Baumeister et al, 2016). On the other hand, we can improve the accuracy of shared future scenarios by communicating them to those who have been in similar situations before and who can advise on what to expect (Suddendorf & Redshaw, 2013). Similarly, older adults can assist young people in constructing an extended sense of time by relating their extensive experiences (Baumeister et al, 2016). Dispelling myths about future thinking competencies in older adults can also be the job of foresight practitioners. For example, it has been found that divergent thinking, considered a key to creativity, does not steadily decline with old age (Palmiero et al, 2017).

1b. Remove the 'future' from future thinking.

As previously discussed, we know that people begin to internalize negative stereotypes about aging early in life. As such, it is possible to imagine how adults even as young as thirty might not want to fully engage in future thinking exercises with a 20-30 year time horizon, people as young as fifty might opt out altogether, and people who are over-65-years old might not even be invited to share their input. While a revolution in how we think about old age would be most helpful, I recommend also trying an approach that can be implemented immediately.

Tapping into a what might seem like a neurological disadvantage for older adults could be the key to helping us all to overcome negative impacts of fears of aging on future thinking. According to Bulley et al (2014), "older adults have a greater difficulty in imagining the future, rather than imagining experiences per se" (p.39). I wonder, what if we removed the 'future' part of future thinking? For example, what if instead of asking an 80-year-old to consider a climate change impacted world in 20 years, we brought a climate change impact forward in time and asked "what would you need to do if your city flooded today?". While 20 years from now, an 80-year-old will no longer be 80 years old, there will be other 80 year-olds (i.e. the 60 year-olds of the present) that will benefit from having a past 80 year-old describe the impact that extreme flooding would have on their social, economic, emotional, and physical welfare. While this is also true of all ages, this tactic is likely most important for the oldest in society as only those who are elderly can tell us about this stage of life. Allowing ourselves at any age to consider drastically changing circumstances without the additional burden of a particular timeline (or advanced age) may remove a key psychological barrier to participating in future thinking and contributing to foresight projects.

1c. Find empowerment in different experiences of time

The literature review around time conceptions revealed that we do not all experience time the same way. While we use clocks to organize many of our activities, linear clock time is not necessarily the best device for everyone to describe how they experience and manage daily and life-long responsibilities. This is especially true for those who have high levels of care responsibilities (often women). A move away from using clock time to describe our near futures (hours, days), mid futures (months and years), and lives (decades, centuries) might enable more people to participate in future thinking and communicate how they see their lives playing out under different contexts.

We know that future thinking is both neurologically and emotionally taxing. Making it more enjoyable, or at the very least less taxing, is important to helping more people engage in it. According to Baumeister et al (2016), people feel more in control and report higher enjoyment when their plans are driven by narrative sequences, rather than propositional cues such as clock time. Furthermore, I expect that not having to fit one's experiences into a rigid linear format would also reduce the mental load of future thinking for the many whose responsibilities and activities are highly interdependent and related to the needs of others. The first step to replacing clock time with narrative sequence in future thinking and foresight activities is likely listening to those whose experiences of time are highly relational (again, often women). The second step might look like the experiences of the fathers from Nockold's study who stepped into the role of primary caregiver. That is, those who typically take on responsibilities that fit nicely into linear frameworks might benefit from experiencing time through more relational responsibilities and activities.

It is also important to explore beyond Western notions of time. Not only does this allow us to consider multiple points of origin, but it can also help us decide when to act. For example, Chisholm Hatfield et al (2016) demonstrate how traditional ecological knowledge relies on tuning into environmental cues and "finding the right moment or "time" to act based on environmental indicators." (p. 8). In this way, ecological interactions are seen to be moving things forward, and events like the emergence of seasons are determined by these (rather than fixed dates in a calendar). An understanding of "timings and connections" (Chisholm Hatfield et al, 2016, p.7) with respect to climate change indicators should similarly make it possible to determine the moment to take personal action towards mitigating impacts. In contrast, Western culture's reliance on linear time and its addiction to the 5-year, 10-year, and 50-year plan does not help us understand how to act in concert with nature, rather, it ensures that we remain perpetually out of sync with it.

Recommendation 2. See yourself as continuous in time and foster a relationship with future self

Identifying with one's future self is considered critical to future thinking. According to Suddendorf & Redshaw (2013), "one needs to care about one's future in order to motivate current actions aimed at securing future well-being or preventing future harm." (p.138). Further to this, Hershfield (2011) argues that in the context of long-term financial planning, it is also important "that one person has but one identity" (p.4) that is shared by their present and future selves. It is this connection that ties the person's present monetary assets to the future and motivates them to save money.

2a. See yourself as continuous in time with just one identity over time.

According to Hershfield (2011), connecting with our future selves may depend on how similar we feel our future self is to our present self. This seems to be in direct opposition to our brains' tendencies to treat our future selves increasingly as strangers the further we move away from the present. While time does change us in many ways, trait-level personality characteristics tend to be stable over time (Hershfield, 2011). Another important aspect of ourselves that is constant over time is the notion of "free will". That is, we are generally able to deliberately choose among different paths, and that is also (most likely) true of our future selves. If we discover and accept our trait level personality characteristics, we can apply this self-awareness to anticipate our future mental states and the choices we might make during significant future events. And in this sense, we can come to know our future selves better.

2b. Even out the vividness of the present and the future

Unfortunately, even if we know something about our future selves, those selves must compete with our very vivid present selves. This can be a significant barrier to feeling as though the future self is like the present self, and thus seeing oneself as continuous in time. To help this, it may be possible to increase the future's meaningfulness, thus adding richness to it. Because the future has not happened, we cannot rely on physical events to help us draw connection to it. According to Baumeister et al (2016), in this context meaning becomes "the main alternative to physical relationships" (p.7), and thus the "pathway back from the future to the present depends on meaning" (p.13). Elaborating our imagined futures to include symbolism and other emotional representations can illuminate the future, making them more vivid and somewhat more comparable to the present.

Recommendation 3. Give yourself more personal foresight material to work with

According to Del Missier et al (2013), when it comes to decision-making, semantic memory supplies appropriate knowledge and supports comprehension, while episodic memory provides relevant experiences to assist judgment or estimation. In this way, the past acts on the present through the future. That is, memories of past events and the knowledge built up through them support our ability to imagine and evaluate future outcomes (future thinking), which in turn influences decision-making (taking action in the present). Kruger & De Klerk's (2020) poetically sum it up as: "In remembering, memories of the past become present. Simultaneously, they become components of the future. In this sense, we remember a future for ourselves that exists in hope." (p. 136). Considering its role in future thinking and decision-making, access to a large memory store should enable us to consider and evaluate more future options. I recommend two ways to create more memory material: develop new points of origin from which to extrapolate, and process experiences deeply.

3a. Bring in new points of origin

According to Musanga & Mutekwa (2011), in the African context time "is neither a linear time nor a simple sequence in which each moment effaces, annuls, and replaces those that precede it, to the point where a single age exists within society" (p. 1302). Rather it is an "interlocking of presents, pasts, and futures, each age bearing, altering and maintaining the previous ones" (p.1302). The concept of revolutionary time has similar underpinnings in that it is "a return to, recuperating,....re-membering,.... of giving body or life back to which has become overly disembodied or dead..." (Soderback in Tyson, 2021, 15:54).

Concepts like the interlocking time zones (Musanga & Mutekwa, 2011, p.1302) and re-membering the past (Tyson, 2021) allow for different points of origin from which we can extrapolate the present and the future. In turn, these new points of origin create new knowledge (semantic memory) and new narratives (episodic memory) that can be remixed to create novel images of the future to further ponder. Furthermore, according to Damhof (in Badminton, 2021), we sometimes cannot make sense of weak signals of change in the present because they do not fit with the one image of the future we have become accustomed to. By having many images to work with, we should be able to recognize and make sense of more weak signals, giving us even more future thinking material to work with.

3b. Process experiences, including future ones, more deeply

Another way to gain more memory material to work with is to process experiences of the past and pre-experiences of the future more deeply. We tend to recall more of the experiences that at the time we experienced them represented novel events (often from our younger years) than similar proceeding events. This is illustrated by the “reminiscence bump” in which people over 70 tend to recall more events from their 20s than their 40s and 50s, despite the latter being temporally closer to the present (Suddendorf & Corbalis, 2007). Based on what we know about episodic and semantic memory, it might be possible to mitigate this effect through conscious efforts. Revisiting and reprocessing overgeneralized experiences (i.e., those “lost” to semantic memory) to add back some of the faded narrative (episodic) details may make them more personally meaningful, vivid, and thus more accessible for recall.

This seems to also be true of future events. People tend to enrich their future narratives each time they think of them (de Vito et al, 2006), making them appear more vivid in their minds. In fact, because desirable future events typically get more play time in our imaginations, they tend to seem more plausible than undesirable events simply because we can see them more clearly (de Vito et al, 2006). Daydreaming offers an environment for recall of past events and construction of future scenarios (Suddendorf & Corbalis, 2007). Spending ample time in this space allows us to continue to add detail to both the past and future, creating a virtuous cycle for the generation of new material with which to future think.

Recommendation 4. Choose tools that allow for iteration to overcome initial reactions

Psychologically healthy adults tend to be optimistic about their futures. It is not that they don't think bad things will happen, but overall, they imagine more positive than negative events, making the future seem generally bright (Hatala et al, 2017). This is in direct opposition to the experiences I had at the beginning of my project. There could be several reasons for this, including that I may have been experiencing, along with the rest of the world, negative psychological health impacts from the pandemic.

4a. Mitigate your current mood

A reason for the negative mindset at the beginning of my project may lie in the context in which I set out to imagine the future. It has been noted that the seeming certainty of devastating impacts of climate change is increasing the prevalence of climate change anxiety (Clayton, 2020). Interestingly, clinical anxiety tends to further increase imagined negative content and those with clinical depression tend, not only, to generate fewer positive future events, they also experience decreased richness in episodic foresight simulations (Bulley et al, 2014). In retrospect, an already depressed mood combined with climate change anxiety may be partly responsible for my initial dystopian images of the future.

While succumbing to cultural pressures to think positively is not helpful, a degree of optimism is important in future thinking. Having low expectations for future success is a key risk factor for impulsivity, which is essentially the tendency to orient oneself to a present perspective (Hatala et al, 2017). Additionally, according to Baumeister et al (2016), for planning to be most effective, future thinking must include both forming a desired outcome (optimism) and identification of potential obstacles (pessimism). The order in which this happens is also critical. If obstacles are the initial focus, people tend to get trapped in negativity and their creativity stagnates (Baumeister et al, 2016). To overcome this pitfall and develop both optimistic images of the future and realistic images of the barriers to that future, I recommend using tools such as the Three Horizons (3Hs) framework. The 3Hs encourages dialogue between a desired future (H3) and the pathway through which it might be achieved (H2). This includes factors within H2 that, if left unchecked, may lead back to undesirable components of the present (H1). Three Horizons in particular enables "different perspectives and variety of evidence to be held and appreciated at the same time" (Sharpe et al, 2016, n.p.) in a way that satisfies Baumeister et al's requirements to balance optimism and pessimism.

Recommendation 5. Get beyond words

Using alternative ways to explore and express the future seems to give us permission to consider ideas, concepts, and narratives that we might not usually entertain. According to Damhof (in Badminton, 2021), “[s]ometimes talking about [the future] in a cognitive or verbal way is not enough, you need body work, arts or even music to kind of let go of these strongly held narratives” (21:35).

5a. Choose creative methods that leverage neurological processes

The literature reviews on vividness, self-transcendent experiences (STEs), and the role of memory all indicate that using creative methods could be beneficial for future thinking. Vividness can be leveraged by an artistic practice to activate other sensory systems (such as sight and touch) and engage emotion centers in the brain. A particular self-transcendent experience, “flow”, is accessed through pursuing an enjoyable yet challenging activity, which for many people is likely to include a form of art or a creative activity. Finally, memory and learning are enhanced when there is deep processing, and the more different modes are used to process them (arts-based activities, games, etc), the more this seems to be true (e.g. Acquah & Asabil, 2020; Reingold, 2014).

5b. Develop a personalized creative practice

Another common thread running through these leverage points (vividness, STEs, and memory) is the benefit of creating a practice. We know that we add details to images of the future each time we think about them, flow is often accessed through activities in which we already have some level of mastery, and memory benefits from additional processing. Developing a personalized creative future thinking practice generates opportunities to engage these leverage points regularly. It is possible that practicing future thinking regularly through these brain-centered leverage points may also build further neurological capacity for future thinking. For example, it has been found that thalamus (the right side being important to spiritual experience) tends to be asymmetrical in Buddhists and Franciscans (both of which rigorously practice chanting and meditation) (Newberg, 2016).

Finally, developing a creative future thinking practice, especially one we can share with others, can also make it more enjoyable and something we are more likely to do regularly. Physical repetition through a creative process (drawing, photographing, acting, meditating, etc) can cause neuronal rhythms and arousal in the limbic system (a brain area highly associated with emotion) (Newberg, 2010). These increased neuronal rhythms tend to produce more pleasurable experiences (Newberg, 2010). Pairing future thinking with neuronal rhythms may also induce neurological connections between future thinking and the positive feelings already associated with the creative practice, (i.e. Hebbian learning - the phenomenon of neurons firing together also wiring together). In this way, it may be possible to rewire the act of future thinking such that it is experienced positively.

5. IMPACT

IMPACT

To evaluate the impact of my project, I created one last photo by integrating my recommendations into my future-thinking. In the section below I discuss my last photo in light of my first photos, looking for changes in the overall theme of the image and how I portray my future self. In my reflection, I evaluate if I was able to truly transform my mindset to an empowering flexible perspective that I could begin to act towards.

Photo 10: Rebirth



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Localism has been taken to the extreme as we harness knowledge from the body's own complex biological systems. This is particularly true of the female body which has always had the ability to be productive using few external resources. As such, my own body has become the latest landscape in which I attempt to grow my own food.

Context

I contemplated this image for well over a month before trying to create it. By this point, it was the beginning of spring and my roommates and I were moving on from indoor experiments and starting to plant seeds in containers on the sundeck that we hoped would be the beginning of our summer garden. During those weeks, I began to think about what a drastic change in my role in the future might look like. It was clear that simply adopting technology to adapt to my surroundings was not really a “desired future”. It was also clear that, despite feeling little control over the situation, maintaining a reactive state in the pandemic was unhealthy. My role in both would have to change drastically. This image was created with the dirt from our gardening activities and carrots from a grocery shopping expedition (which was still one of the only in-person shopping experiences allowed under lock-down in Toronto).

Reflection

When thinking in the context of climate change, it was easy to imagine the worst and then how I would try to adapt my current life to fit that scenario. In the early stages of the project, it seemed that some of my future images were even hopeful considering the context I was trying to imagine. For example, adapting paddleboarding with VR goggles seemed empowering and desirable in that I was harnessing technology to continue to do something I enjoyed. Using the Three Horizons framework to re-evaluate my work caused me to question what truly was a “desirable future”, and the answer was not paddleboarding with VR goggles. To reflect on whether I had achieved a true H3 image in Photo 10, I developed evaluation criteria. This criteria boiled down to two key questions:

1. Does the image truly represent a “desired future”? That is, is it something I could work toward and would want to work toward?
2. Does my new image represent a future that is dominated by what we would currently call radical innovations (Fazey et al, 2020)

Impact Evaluation

In the following sections, I discuss Photo 10 in the context of the two criteria I developed to evaluate the impact of the project on my imagination of the future.

Criteria 1

It was important that my final image represent a truly desirable future, but not a perfect future. Since we do not know the future, we cannot say for sure that climate change will have the predicted impacts. Even if progress is made in mitigating emissions, or even reversing them through carbon capture, much damage has already been done. In this sense, climate change is in the present, and the degree to which it will impact us is the unknown future.

Reflecting on my early images helped me uncover how I thought I would react within this unknown climate impacted world. It is clear that my early thoughts of my future self were connected to the activities I do today but disconnected from who I hoped I would be in the future. I did not account for my personal growth, the opportunities that might come my way, and my future efforts to make changes in my spheres of influence, or even that my spheres of influence could grow. I also didn't account for the possibility that other factors (other than myself and climate change) could drastically change how we deal with the impending climate change crisis.

Inspired by this realization, I used my recommendations as a reference point to build an image of a personally desirable future. This final image (Photo 10) attempts to illustrate my desire for a feminist future in which we re-embody knowledge held within natural processes, radically re-think our abilities, bodies, and identities with respect to the natural world, and use these new conceptualizations to develop aggressive local solutions. Even though this world likely endures even worse climate change impacts than today, it is an empowered world that I want to continue to work towards.

Criteria 2

The radical ideas that inspired this photo were not present in the first iterations of my imagination (i.e. in the H1 state). As represented by the zoomed-in focus on the body, we have truly turned inward for solutions. We seek out sophisticated natural systems (symbolized by pregnancy and giving birth) that have been previously overlooked and therefore understudied and underutilized. And finally, we make connections between what were historically considered disparate systems and needs (symbolized by the female using her own body to grow her own sustenance). This dramatically opposes the reactive, dispirited mood of the initial images that reference adapting to undesirable and dangerous situations with the aim of only continuing to live as we did before.

6. CONCLUSION

6. Conclusion

It is clear that the problems of today not only require us all to be active future thinkers, but also to make the future personal. When it comes to climate change, effective evaluation and action of potential solutions will come from the nuance and emotion of personalized futures. As such, a key goal of future thinking must be to foster a relationship with our future selves. This will require us to find new ways to override our brains' default settings, such that we can begin to think of ourselves as continuous in time, no matter how far into the future we travel.

In essence we are our brains. All of our thinking, including how we think about ourselves, is facilitated by neural processes that have evolved to give us the best chance at staying alive long enough to pass on our genes. The capability for prospection in humans is a prime example of this. We are also a product of the interaction of our brains and our behaviours. As such, gaining an understanding of how neurological and psychological factors enable and/or limit future thinking should be a foundational foresight activity. When we understand the internal processes in which future thinking is generated, we can move towards harnessing them to their full benefit with creative external processes, such as art-making, meditation, etc.

Our culture and values must also be considered if we are to get to know our future selves. These shape how we view ourselves, influencing both our moods and self worth. The role this plays in producing fears and anxieties is an important consideration when it comes to future thinking. In order to become more comfortable with mental time travel to the future, we must find ways to push past the fears that tend to immobilize our imaginations. This means finding ways to hold our future selves in high regard such that we feel compelled to connect with and act beneficially towards those selves. In this regard, it is especially important that optimistic visions precede pessimism so that we see a path forward full of both leverage points and obstacles, and not just an impassable wall of barriers.

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