



**DES
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INCLUSIVE SPECTRUMS

**Presented By INCD 6016
Inclusive Art, Design
and Communications**

**Arrive Online August 9th
1pm EST(GMT -5)**

Inclusive Spectrums

INCLUSIVE SPECTRUMS

Preliminary Research Exhibition

OCADU 2019/2021 INCLUSIVE DESIGN MASTERS COHORT

AMNA AZHAR, SARA BOBACK, JASON BURKE, JENNIFER CAO, CHRISTINE CHUNG, JOSIE GRAY, JENNIE GRIMARD, JAIME HILDITCH, MIRJANA JEVREMOVIC, MITALI KAMAT, TAEKYOM KIM, ISABEL CASANOVA LEDESMA, ERIN LEE, ZILONG LI, WANQING LIU, MELISSA NGO, AND CALEB VALOROZO-JONES



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This exhibition was a collaborative project to share our ideas for our major research projects. As such, although the exhibit as a whole is under a CC BY licence, students have selected their own licences for their individual project pages. Please verify those licences before repurposing this work.

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LAND ACKNOWLEDGEMENT

Although this is a virtual event, we are not virtual people, and we wish to acknowledge the lands on which we are privileged to host this exhibition and send our thanks to the people who have cared for these lands since time immemorial.

Our student cohort lives and studies on Indigenous lands across Turtle Island from coast to coast. Most of us live on or around the traditional lands of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit River. On the west coast, we are on the territories of the Ləkʷəŋən People, known today as the Songhees and Esquimalt Nations, and the territories of the WSÁNEĆ People. And on the east coast, we are on the territories of the Massachusett Tribe.

EXHIBIT GUIDE

We are OCAD University's Inclusive Design 2019/2021 cohort, and this exhibit is our opportunity to flush out and share our preliminary major research ideas with our communities, form connections, and collect feedback. This exhibit is shared via [Pressbooks](#), an open source self-publishing tool built on WordPress. [eCampus Ontario](#) hosts an instance of Pressbooks and makes accounts free to Ontario post-secondary students and faculty.

This site will act as a home for our exhibition that visitors are encouraged to share and come back and visit at any time.

On August 9, 2020, we hosted a live launch event. Watch the below recording for a brief introduction to all of our projects and the following Q-and-A period.



A YouTube element has been excluded from this version of the text. You can view it online here:
<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=4>

About the exhibit

[Inclusive design](#) is design that considers the full range of human diversity with respect to

ability, language, culture, gender, age, and other forms of human difference. As such, our exhibit explores the vast spectrums of human diversity and asks how we can design for those spectrums. We each bring our own perspectives, strengths, and passions, resulting in a huge range of projects and approaches.

The projects presented here explore a variety of themes, ranging from healthcare, to sensory experiences, to storytelling and services for cultural communities, to neurodiversity, and finally, to design practices and processes themselves. Our projects ask questions like:

- How could incidental learning strategies be used to provide pre-braille education?
- How could virtual reality be used to support job interview training for folks with ASD?
- How could design education better prepare future designers to consider accessibility?

Inclusive design is complex. Inclusion means different things to different people, and there is a multitude of ways we can design for inclusion. There are no checklists, templates, or best practices. It requires humility, flexibility, and a willingness to listen and learn and shift how we understand expertise.

We hope you will explore our various research areas, consider the spectrums of proposed inclusive frameworks, and reflect on the design of this digital exhibition itself.

About the course

This exhibit is the final project for a course on Inclusive Art, Design, and Communication, taught by Teresa Lee and Melissa Smith. The course focused on how we can communicate and share our project ideas in inclusive ways. The course included a combination of guest speakers and lecturers who shared their expertise around inclusive exhibition practices.

The original design of this assignment was to produce an in-person exhibit, but with the pandemic, we had to adjust and explore the affordances of sharing our work in a digital space.

About the program

OCAD University's [Masters of Design in Inclusive Design](#) is a two-year graduate program. The goal of the program is to empower students to design for differences rather than design for the majority, or what we define as “average.” This shift in approach aims to break through societal barriers and address the growing demand for access and inclusion in all aspects of our lives. Students explore equity and access issues through the lens of design thinking, leveraged by the application of inclusive digital technologies, and multi-disciplinary research and design practices.

HOW TO NAVIGATE THE EXHIBIT

Our exhibit can be accessed in a number of ways and is available in a variety of formats. The webbook can be accessed on a computer, tablet, or mobile phone through a browser (Chrome, Edge, Safari, and Firefox) by going to the following link: [Inclusive Spectrums – Access Online](#). The exhibit can also be downloaded as a PDF or eBook for offline viewing. Download the book in one of these formats from the exhibit’s homepage by clicking “Download this book” under the cover image.

Although this exhibit is organized linearly, there is no “one” way to explore. You can go from beginning to end or jump around to the specific projects that catch your interest.

If you want to start at the beginning and go page by page, you can use the “Previous” and “Next” arrows that appear at the bottom corners of your screen.

← Previous: Land Acknowledgement

Next: How to Navigate the Exhibit →

But maybe you want to find a specific project or topic that fits your interests. All projects in this exhibit are grouped into themes. The themes are as follows:

- [THEME 1: HEALTHCARE](#)
- [THEME 2: MULTISENSORY](#)
- [THEME 3: STORYTELLING AND CULTURAL COMMUNITIES](#)
- [THEME 4: NEURODIVERSITY](#)
- [THEME 5: DESIGN PRACTICE AND PROCESS](#)

On the top of each page, there is a link called “Contents.” When you select “Contents,” you will see a full list of themes and projects. Select a project from the list to go directly to that project page. There is also a search bar that will allow you to search the entire exhibit at once.

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INCLUSIVE SPECTRUMS

HOW TO NAVIGATE THE EXHIBIT

ABOUT THE STUDENTS

Amna Azhar, software developer

Amna is a research assistant in the Adaptive Context Environments Lab at OCAD University. She has previously worked on extended reality entertainment projects and has developed interactive VR, AR, and Hologram exhibits for Museum. She is currently exploring artificial intelligence & machine learning (i.e., soft-computing via neural networks and fuzzy logic) in mixed reality agent systems and their user experience in the context of adaptive interfaces. Amna is interested in doing multidisciplinary projects for the design and development of novel applications focused on assistive and rehabilitation technologies.



Explore Amna's major project, [Virtual Reality Storytelling for Older Adults](#), and connect with [Amna on LinkedIn](#).

Sara Boback, web accessibility professional

Sara is an inclusive designer and web accessibility professional working in the public sector. She enjoys working with teams to bridge the gap between accessibility and usability and increase understanding of human-centered approaches. Sara is currently working on the social assistance portfolio in Ontario where she is focused on user research and accessible product design.

Explore Sara's major research project [Designing Inclusive Digital Experiences for Neurodiversity](#) and connect with [Sara on LinkedIn](#).



Jason Burke, Addressable Media Buyer

Ever since Jason was a child, he wanted to be a designer. Growing up he was inspired by art, culture, fashion, hip hop, sports and technology. Books have been embedded in his life for as long as he can remember. Books offer an opportunity to experience a perspective and reality different from our own, and this is why his parents spent countless hours building community connections and teaching others how to be trailblazers through [Burke's Bookstore](#) because books and education are his family's legacy. Fast forward to today: All Jason can think about are the experiences he has collected over the last three decades in his [snkrbox](#) and his desire to share this collection of learnings with you in the age of digital transformation. These books helped shape his way of thinking and why Social Justice through Art and Expression is the only way forward for him at this stage of his life.

Explore Jason's major project, [The Black Aesthetic – Delivering Diversity Through Big Data](#),



and connect with [Jason on LinkedIn](#), [Facebook](#), [Instagram \(@SnkrBox\)](#), and [Twitter \(@SnkrBox_Inc\)](#). You can also check out his website at [SnkrBox.com](#).

Jennifer Cao, service designer

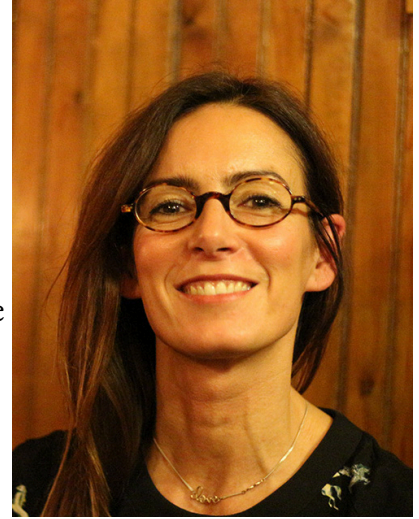
Jennifer is a Service Designer creating products and experiences with brands in public transportation, finance, energy and loyalty. She is a co-organizer with [intersectTO](#), a community group for people who identify as Black, Indigenous, and people of color (BIPOC) creating an online and in-person space where BIPOCs can learn tech skills, find collaborators, and hold critical discussions on how tech affects communities of color. Past events include a conference on digital justice, community talks, hackathons and portfolio reviews. Read about [intersectTO's work on CBC Spark](#) + more about her design process and career journey on [People of Color in Tech](#).



Explore Jennifer's major project, [Absent Presence – Intergenerational Trauma and Healing through Oral History](#), and connect with [Jennifer on LinkedIn](#).

Isabel Casanova Ledesma, strategic designer

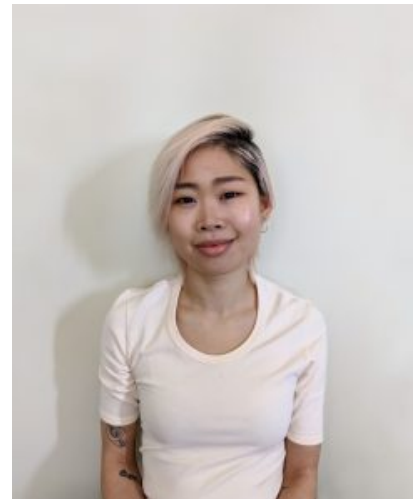
Isabel is a strategic designer based in Toronto, Canada. She has many years of experience in different design disciplines, from service design to product development and strategy, providing a comprehensive perspective and deep understanding of how digital products and services are made and delivered to the end-user. Throughout her career, Isabel has worked with a wide range of international companies in media, finance, telcos, travel, and energy across Europe and America.



Explore Isabel's major project, [Improving Inclusion in Digital Design](#), and connect with [Isabel on LinkedIn](#), [Twitter \(@isabl\)](#), and her website at [IsablCasanova.com](#).

Christine Chung, spatial & graphic designer & illustrator

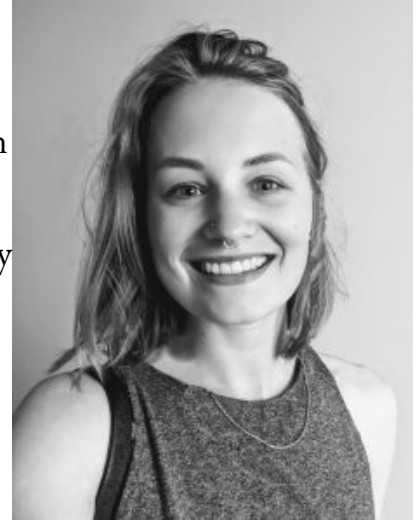
Christine is a spatial and graphic designer and illustrator based in Toronto, Ontario. Throughout her career, she has worked in various scales of design—from large-scale urban planning to fine-grain personal branding. This has led her to craft a wide range of design solutions for healthcare, transportation, residential, commercial, and cultural sectors across North America, Europe, and Asia. In her personal work, Christine is passionate about exploring the intersections of gender and cultural identity in the design process, practice, and product through illustration and experimental digital representation.



Explore Christine's major project, [Virtual Communities for Chinese Seniors in Social Isolation](#), and connect with [Christine on LinkedIn](#) and her website at [Christine-Chng.com](#).

Josie Gray, OER publisher & editor

Josie is an accessible open publishing advocate who is trying to figure out what it means to be an inclusive designer. She is interested in the balance between print and digital design from an accessibility perspective, feminist approaches to publishing, and what lies beyond providing “access” to information. She currently works for BCcampus in Victoria, B.C., where she manages their [B.C. Open Textbook Collection](#) and provides training and support for B.C. faculty publishing open textbooks. Josie has been learning and teaching accessibility in the context of OER since 2016.



Explore Josie’s major project, [Equity in OER Publishing](#), and connect with [Josie on LinkedIn](#) or [Twitter \(@josiea_g\)](#).

Jennie Grimard, graphic designer & educator

Jennie is a freelance graphic designer and the program lead for the Graphic Design for Print & Web certificate in the Faculty of Media and Creative Arts at Humber College in Toronto. Over the last decade, she has taught design to a range of students at Humber College—from first years to professionals looking to upgrade their skills. As an educator, accessibility in the classroom has always been a priority and she has worked on several initiatives at Humber to create resources for students, faculty and the digital design community. In addition to teaching, Jennie has also been working as a freelance graphic designer for various community organizations and local retailers.



Explore Jennie's major project, [Inclusion and Access: Graphic Design for the 21st Century](#), and connect with [Jennie on LinkedIn](#).

Jaime Hilditch, graphic designer & writer

Jaime is a graphic designer and writer based in downtown Toronto. She is passionate about social design and has worked on meaningful projects, including branding for a fair fashion conference, the creation of a children's book encouraging the use of less plastic, and branding for a company focused on First Nations. Halfway through her Master's of Inclusive Design, Jaime has tackled projects looking to assist individuals with visual impairments. An early project explored the creation of feasible braille signage for university campuses.



Explore Jaime's major project, [Pre-Braille Implementation in Early Education](#), and connect with [Jaime on LinkedIn](#) and her website at [JaimeHilditch.com](#)

Mina Jevremovic, design educator

Mina Jevremovic has been an educator for over a decade. Teaching Interior Design at Georgian College has turned this incidental profession into a passion for teaching and opened up new horizons for the variety of learning styles. Year after year, she observed that catering to the individual learning styles leads to a dynamic and creative class! The awareness of neurodiversity and inclusion also comes from her personal perspective—as a mom of an autistic boy. Hence, the interest in Inclusive Design. She is currently working on a prototype that provides job interview training for individuals with ASD using VR/VM technologies.



Explore Mina's major project, [Virtual Reality – Job Interview Training for Individuals with ASD](#).

Mitali Kamat, pediatric occupational therapist & assistive technology professional

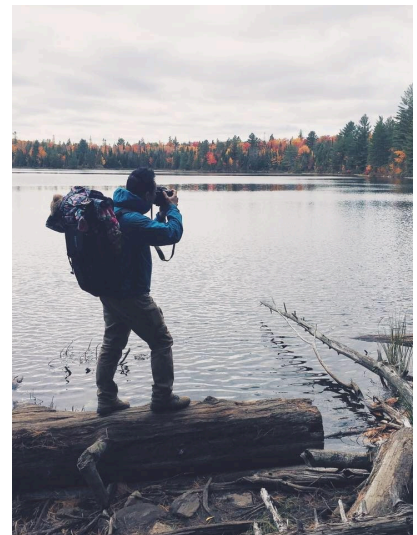
Mitali is an Occupational Therapist and Assistive Technology professional working in inner city public school districts with children with special needs for over six years. She is also working with [IHCD \(Boston\)](#) on a project focusing on inclusive work environments for blind and partially sighted individuals, through the Massachusetts Commission for Blind (MCB). Her key interest areas are assistive technologies and inclusive design. She is passionate about understanding more about how we can design inclusive environments in the physical and digital realm.



Explore Mitali's major project, [Multisensory Graphic Communication for Blind and Partially Sighted Individuals \(BPSI\)](#), and connect with [Mitali on LinkedIn](#).

Taekyom Kim, design thinker

Taekyom is a Toronto-based graphic and UI/UX designer. His main focus was traditional graphic design. However, he found so much fun in digital fields of UI, UX, wireframe or web design thinking about users' better experience. He believes that the design-thinking process can be applied to various fields around us. He always challenges to solve users' problems with creative and open-minded thinking. Now, Taekyom is broadening his design-thinking theory into an inclusive design area for more accessible design solutions.

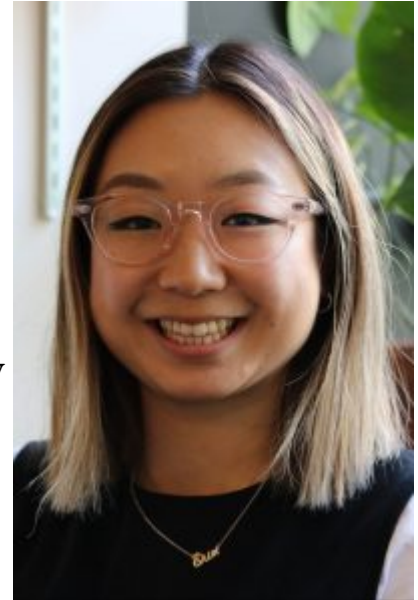


Explore Taekyom's major project, [Inclusive Visual Communication for Immigrant Pregnant Women](#), and connect with him on [LinkedIn](#) and [Instagram \(@TKPresent\)](#) and check out his portfolio at [ImTKKim.com](#).

Erin Lee, communications associate

Erin Lee is a Communications Associate at the Centre for Addiction and Mental Health. She is also a Graduate Research Assistant at OCAD University. Her areas of work include health equity, immigrant and refugee mental health, global health, and e-learning for health professionals. She is currently working on a project with the Canadian National Institute for the Blind that focuses on accessible assistive technology and employment equity for blind and partially sighted individuals.

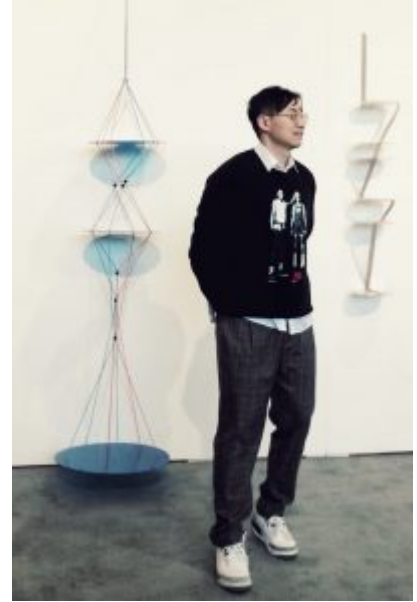
Explore Erin's major project [Participatory Design of Accessible Assistive Technology Training for Blind and Partially Sighted Individuals \(BPSI\)](#) and connect with [Erin on LinkedIn](#).



Zilong Li

Zilong graduated from York University with a major in visual arts. His creative inspiration comes from himself. In his work, he regards myopia as an advantage rather than a disadvantage. He believes that taking off his glasses to paint will result in a blurry and hazy picture, which is also a unique beauty. After he joined the inclusive design program, he not only hoped to inspire the nearsighted people through paintings, but also through design reforms.

Explore Zilong's major project, [The Headband: Passive Protection Products to Reduce the Risk of Retinal Detachment](#), and check out his website at [CJ Visual Art](#).



Wanqing Liu, industrial designer

Wanqing Liu is an industrial designer graduated from South China University of Technology. The key areas which she is passionate about are toy design, graphic design, and assistive product design. She believes that the role of designers is to coordinate the relationship among human beings, objects, and environment, with their creativity and empathy. With the enthusiasm for that, she is now participating in the Inclusive Design program and would like to apply inclusive design principles into her future design.



Explore Wanqing's major project, [Inclusive Music Experiences for the Deaf and and Hard of Hearing](#).

Melissa Ngo, family support specialist

Melissa Ngo is a Family Support Specialist at Holland Bloorview Kids Rehabilitation Hospital and co-founder of Hand Over Hand Community Organization. Melissa knew she would be involved in the field of disability rights and advocacy from a very young age. With over fifteen years of work with the disability community, she strives to co-design engaging, accessible, and health literate resources for families and peer-driven programs. Her interests lie in health equity, co-creation, and community and educational program development.



Explore Melissa's major project, [Choose Your Own Adventure! Co-Designing and Sharing Information with Children in Healthcare](#), and connect with [Melissa on LinkedIn](#), [Twitter \(@MelissaNgo\)](#), and her website at [HandOverHand.ca](#).

Caleb Valoroza-Jones, UX Designer

Caleb Valoroza-Jones is an inclusive and equity focused UX Designer, food allergy 'foodie', and accidental rubber duck collector. A lifelong misfit and 'edge case,' Caleb's design ethos focuses on increasing representation of marginalized groups, with specific research interests in 2SLGBTQ+ studies, Neurodiverse and Autism studies, food allergies, and digital accessibility. When he's not designing for his fellow misfits, Caleb loves to read, make music, play board games, video games, and Dungeons & Dragons, and make grilled cheeses and pretzels.



Explore Caleb's major project, [Dungeons & Dragons & Neurodiversity: The Transformative and Life-Enriching Effects](#)

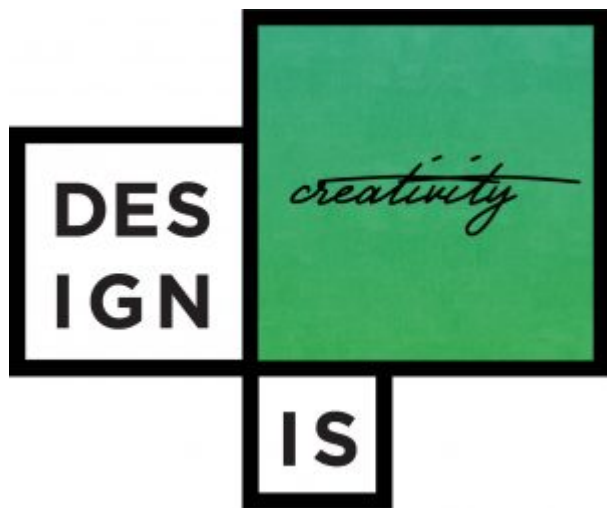
[for Neurodiverse Adults](#), and connect with [Caleb on LinkedIn](#) and [Twitter \(@qrnr\)](#) and check out his website [CalebHannonJones.com](#).

THEME 1: HEALTHCARE

Projects to explore around healthcare

- [The Headband: Passive Protection Products to Reduce the Risk of Retinal Detachment by Zilong Li](#)
- [Inclusive Visual Communication for Immigrant Pregnant Women by Taekyom Kim](#)
- [Choose Your Own Adventure! Co-Designing and Sharing Information with Children in Healthcare](#)

THE HEADBAND: PASSIVE PROTECTION PRODUCTS TO REDUCE THE RISK OF RETINAL DETACHMENT BY ZILONG LI



Foreword :

Before introducing my work, I would like to introduce myself, and I will tell you about my creative journey and source of inspiration.

Hello, I'm Zilong, I've been wearing glasses since I was 7 years old, first with 1.0 diopters for both eyes, then increased 1.0 diopters every year. My parents took me to see many ophthalmologists, but their conclusions were different, some thought it was a genetic problem (both of my parents had myopia), some thought I watched too much TV.

As my myopia problem got worse, I was banned from watching TV, even on the computer. So, in childhood when everyone was playing computer games, I could only kill my time by reading comic books and outdoor sports. However, the situation has not improved. My eyes still grow by 1.0 diopters per year. I basically need to change a pair of glasses every year.

When I reach 8.0 diopters, the doctor advised me to reduce strenuous exercise and move heavy objects. At that time, I just fell in love with playing basketball. I didn't understand the doctor's advice at the time, but I could clearly feel that when I played basketball with thick glasses, my glasses were often hit and damaged, and my eyes are often injured by wearing glasses while playing basketball. At that time, I felt the disadvantages of wearing glasses for the first time, and it was also the first time that I wondered whether the need to wear glasses is a disability.

This kind of question has always been with me. By the third year of my university, our professor asked us to create painting propositions and complete them. At that time, I wanted to let everyone see the problems faced by people with high myopia, so I decided to take off my eyes and paint. First, I hope the audience can see the blurry scene I see. Before making changes, we need to be recognized by the public. Second, I hope that after seeing my work, myopic people realize that being unable to see clearly is not a disability. On the contrary, it may be an advantage. This kind of blurry picture can only be seen by us near-sighted people without glasses.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=259>

After I finished my work, my professor told me that my ideas shouldn't just stay in artistic creation. If I really want to change a practical and changeable problem, then I should go to the field of design, really create something to benefit the nearsighted people.

Therefore, what you are about to see is a goal I have always wanted to accomplish. I want high myopic people to do every sport they want, I want them to feel that wearing glasses is not a disability, because I see it as a motivation for my creativity.

HIGH MYOPIA & RETINAL DETACHMENT

Zilong Li



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=67>

References

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SCENARIO SHOWS

Zilong Li



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=388>

Try to bring yourself into Mike, his ophthalmologist, and a third party to think about the problems caused by this accident.



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=388>

Try to bring yourself into Elizabeth, her relatives, and a third party to think about the problems caused by this accident.

THE HEADBAND

Zilong Li

Both Mike and Elizabeth had an accidental impact. This impact is likely to cause their retina to detach and become permanently blind. So what can be done to reduce their risk of accidental impact?

**The following video is an introduction to my MRP achievements:
The Headband**



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=390>

Your Opinion Matters!

After watching the video, do you think there are still areas for improvement in this MRP?

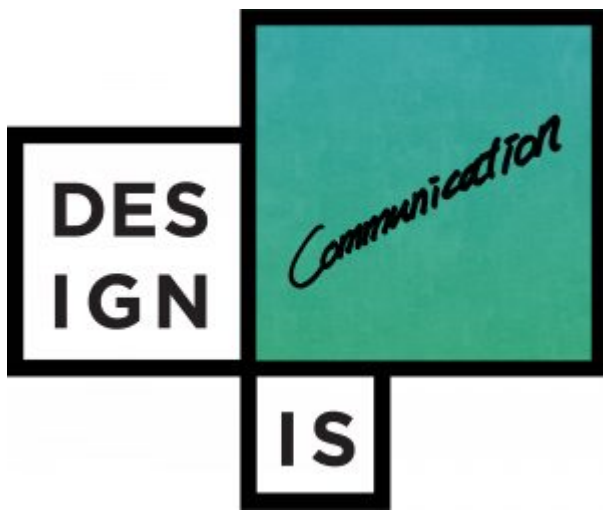
If so, please feel free to reach me at 3181976@ocadu.ca and complete the survey!

**Inclusive Spectrums Survey – I would like to share my ideas and
opinions**

INCLUSIVE VISUAL COMMUNICATION FOR IMMIGRANT PREGNANT WOMEN BY TAEKYOM KIM

INCLUSIVE VISUAL COMMUNICATION FOR IMMIGRANT PREGNANT WOMEN

Taekyom Kim



Welcome to my chapter,

Inclusive Visual Communication for Immigrant
Pregnant Women!

Brief

My name is Taekyom Kim.

I have been currently researching a new communication tool for pregnant women with low English proficiency. There are huge populations of immigrants who have experienced barriers because of linguistic and cultural differences and understanding. Particularly, my wife had many communication difficulties with her doctor and nurses in obstetrics during her pregnancy period. This is one of the reasons why I am working on the topic for my MRP.

Here is a short video clip that can help you understand my MRP topic and design ideas. (You can turn on the 'CC' for subtitle in English.)

If you don't want to play the video, here is a link for the version of PDF document with scripts.

DOWNLOAD



A YouTube element has been excluded from this version of the text. You can view it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=65>

Research Questions



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=65>

Research Goal

“The initial goal through my MRP is to develop a tool for better communication between patients and doctors/staff that can break the language barriers.”

- **Visualized Communication**
- **User Experience Design**
- **Universal Symbols and Graphics**
- **Advanced Technologies: AR**
- **Audio Information**
- **Translated Medical Words**
- **Additional Design Components for Reducing Stress Level: Colours / Sounds**

As the first step for the innovative process, I would like to consider all the possibilities for the design output. The bullet point list shows current ideas for the design process that I can

potentially explore during my research. Through more research, I will be able to collect specific data from stakeholders and it will allow me to develop prototypes to experiment with particular design methods.

Now I am at the very beginning of my research process, however, here I prepared some interactive activities for a better understanding of my design ideas.

Interactive Activity: Scenario

In this activity, you can follow a scenario with two different versions, one with only audio and the other with additional components (visuals, audio, graphics, and numbers). Hopefully, you can compare these two different experiences so that you can see what I would like to develop and what the design direction would be.

Lina is 32 years old and she is one of the immigrant groups from South Korea. She can speak English but she always feels difficulties when she visits a hospital for regular check-ups and tests. Some difficult medical English words bother her communication and understanding.

Scenario 1

Lina visited a hospital for her regular check-up. She went to the reception desk to ask where she should go. But, the staff said Lina needs to have few tests before the regular check-up since they found few things to make sure from the last tests.



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Now here is another video. This time, you can watch the same video with additional components that can help the conversation. In Lina's case, we can imagine that she chose the Korean language option.



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Scenario 2

Lina is taking a conversation with her doctor for her regular check-up and consultation.



A video element has been excluded from this version of the text. You can watch it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=65>

Now here is another video. This time, you can watch the same video with additional components that can help the conversation. In Lina's case, we can imagine that she chose the Korean language option.



A video element has been excluded from this version of the text. You can watch it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=65>

Interactive Activity: Quiz

In this activity, you can play some quiz. It is pretty simple. There are additional components that are introduced in the scenario activity, such as visuals, audio, graphics, and numbers. You can guess what the components mean when they are together.

Enjoy!



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=65>

Survey

Here is a simple survey that asks about your experience of my exhibition and thoughts for my design ideas. It would be great if you can provide your feedback for me.

Your participation in the survey is completely voluntary! You do not have to answer any of the questions in this survey.

- The purpose of the survey is to know how the interactive activities worked and narrow down the design ideas.
- The data will not be used for my MRP research.
- It would take around 3 to 5 minutes in total.
- It is an anonymous survey.
- It will not share your answers with others.
- Your answer will be deleted after this exhibition event.

[\[Click Here to Start Suvery\]](#)

References

[See My References \(Click to expand\)](#)

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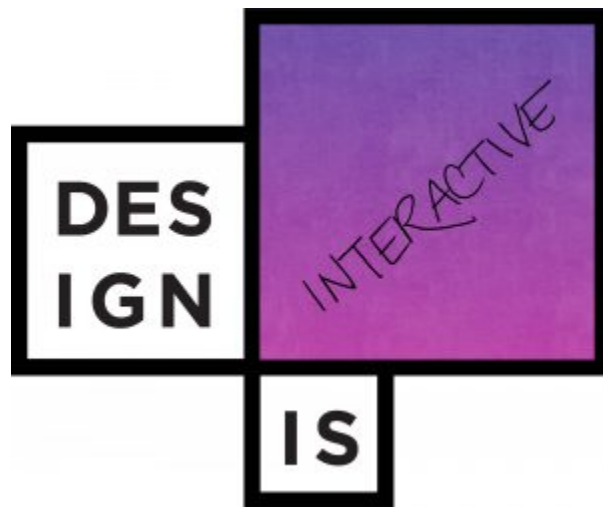
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CHOOSE YOUR OWN ADVENTURE! CO-DESIGNING AND SHARING INFORMATION WITH CHILDREN IN HEALTHCARE



Inclusive Spectrums logo with three squares. There is a medium sized square on the left that says 'DESIGN' within it. There is a small square at the bottom that says 'IS' within it. The largest square is purple, connects the two previous squares, and says 'INTERACTIVE'. The three squares together say "Design is interactive".

This project is about the co-creation of an online welcome tour for new clients of a paediatric hospital, Holland Bloorview Kids Rehabilitation Hospital. You'll notice that in this exhibit:

- Health literate and child-friendly language is used in the tour itself
- This exhibit is interactive, to mirror a potential iteration or simulation of the final product
- There are many voices represented in the exhibit's videos such as staff, families and clients – but the client voice is not centred – yet. We want this research project to heavily involve kids as co-designers of their own healthcare information, as our main goal is for children's voices to be centred and represented. Many paediatric healthcare resources are geared toward parents or caregivers, and we want children to feel just as knowledgeable about their own health and bodies. We acknowledge that this exhibit is one possible prototype of the project, and that the project can look quite different by the end of this research – especially with the leadership and inclusion of children at Holland Bloorview.

That being said, we hope you enjoy yourself in choosing your own adventure at our hospital! Below, you can click the following link to get started, or you can read more about the researcher.

[Click here to get started on the tour!](#)

About the researcher:

Melissa Ngo is a Family Support Specialist at Holland Bloorview Kids Rehabilitation Hospital and co-founder of Hand Over Hand Community Organization. She strives to co-design engaging, accessible, health literate resources for families. Her research project is about co-creating a virtual welcome tour at a kids rehabilitation hospital, and a choose-your-own-adventure theme was suggested by families of the hospital. Through this research, she hopes to reflect that children are valuable and strong co-designers of their own healthcare information. Melissa's work and overall project has to do with health equity, co-creation, and community and educational program development.



Contact information:

- Twitter: [@melissango](https://twitter.com/melissango)
- Holland Bloorview's Website: www.hollandbloorview.ca
- Nonprofit Website: www.handoverhand.ca

ABOUT THE PROJECT: CO-DESIGNING AND SHARING INFORMATION WITH CHILDREN IN HEALTHCARE

Melissa Ngo

Before we get started on the tour, we'll explain **why** we wanted to do this project.

There is a gap in healthcare

The problem: in healthcare, best practices in sharing first appointment information with children is scarce, and there is limited literature that involves children as co-designers of their own information. (Bailey, 2014) (Flynn et al., 2019) (Verjans et al., 2018).

What does this mean? This means that we don't know about the best ways to share information with kids about their own healthcare. Kids also don't always get the chance to give their opinions on information, when it is supposed to be for them.

We wanted to make sure we ask the right questions, in order for us to close the gap in healthcare together.

Finding the right questions

Our research questions are:

What do best practices in healthcare co-design with children look like?
How can paediatric hospitals measure and provide meaningful information designed by children, for children?

In other words, we want to ask:

What are the best ways for kids and people in healthcare to work together?
How do we know that information made by kids are helpful for other kids?

Next, we had to decide how we would find out the answers to our questions.

Choosing a path to the solution

This idea came from kids, families and staff at Holland Bloorview Kids Rehabilitation Hospital.

Our methodologies and goals:

- Co-create a digital hospital tour in a focus group format with five participants
- Test the effectiveness of the tour by providing surveys to children who have not been to the hospital before. We will use a survey that is similar to the [Measures of Processes of Care \(MPOC\)](#).

What we want to do:

- Kids and people who work in healthcare will make a tour of the hospital, which will be posted online. There will be five kids who will be invited to make this tour!
- We will ask kids who haven't been to the hospital before to tell us if they think the tour was good or helpful. The questions will look similar to a survey that has been used many times before.

Today we'd like you to see a few of the spaces that our kids see on a regular basis, and give you a chance to choose your own adventure at our hospital too! This is just one possible version of the final tour that will be created by the end of the project – we will ask kids for their ideas on how this tour should look.

You can begin by clicking the 'start tour' link below.

[**START TOUR**](#)

References

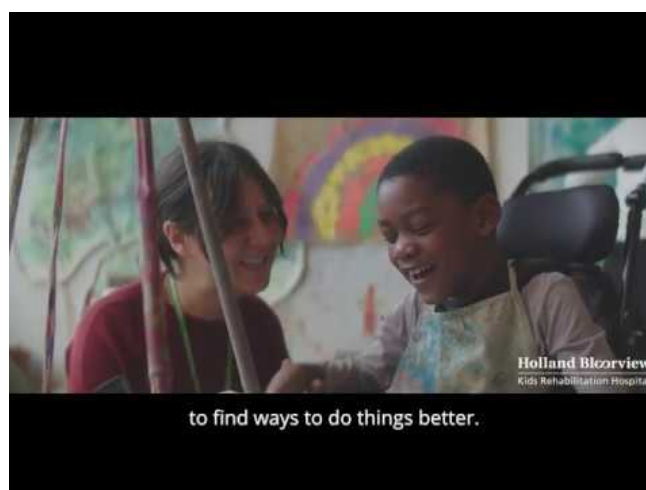
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START YOUR TOUR HERE: OUT, ABOUT AND AROUND THE HOSPITAL

Melissa Ngo

Welcome to Holland Bloorview Kids Rehabilitation Hospital

We'd like to start by helping you get to know a little bit about the hospital, and the people you might find inside! After watching the video, scroll down on this page and **choose** where you'd like to go next.



A YouTube element has been excluded from this version of the text. You can view it online here:
<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=748>

Choose where you want to go next!

[I want to go to the hospital lobby.](#)

[I want to get creative in the art spaces.](#)

[I want to see where I will have my appointment.](#)

[I want to look at some books in the library.](#)

[I'm hungry! I want to go to the cafeteria.](#)

EXPLORE THE LOBBY

Melissa Ngo

Lobby

This is the first area that you'll see when you enter the building! Although it looks empty right now, lots of other kids with their families are usually here too. In the lobby, you can decide if you want to relax or wait with your family, find the art studio, go upstairs to your appointment, or visit the cafeteria! You can click and drag the image below to look around the lobby. You can also click the blue and white plus signs to find out a little more information. There is also a scene description available if you click the 'i' icon in the bottom left corner of the image.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=368>

Here is a video of our Youth Advisory members talking in the lobby about what an 'Accessible Canada' looks like.



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Choose where you want to go next!

[I want to get creative in the art spaces.](#)

[I want to see where I will have my appointment.](#)

[I want to look at some books in the library.](#)

I'm hungry! I want to go to the cafeteria.

I'm done looking around!

EXPLORE SPIRAL GARDEN'S ART SPACES

Melissa Ngo

Spiral Garden's Art Spaces

You made your way to Spiral Garden, which is where kids can take a break, take a walk, or make some art! This is a place where you can be really creative, go to summer camp, and where you can learn about what other kids have made. It is in the 'backyard' of Holland Bloorview. You can click and drag the two images below to look around Spiral Garden. You can also click the blue and white plus signs to find out a little more information. There is also a scene description available if you click the 'i' icon in the bottom left corner of the image.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=370>

There's more you can look at, if you go down the path!



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=370>

Here is a short video about the art spaces at Holland Bloorview. You'll hear a little bit about why we think art is so important, from our Artist, Shannon! She talks about how it's okay to 'get messy'!



A YouTube element has been excluded from this version of the text. You can view it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=370>

Choose where you want to go next!

[I want to go to the hospital lobby](#)

[I want to see where I will have my appointment.](#)

[I want to look at some books in the library.](#)

I'm hungry! I want to go to the cafeteria.

I'm done looking around!

EXPLORE THE WAITING ROOMS

Melissa Ngo

Waiting Rooms

Welcome to the second floor waiting areas! You might have chosen to explore the waiting room because you have an appointment at Holland Bloorview soon. Other kids who are waiting for an appointment too might be around this area too! Plus, you might see a few fun things that you wouldn't expect. For example, you might find a big fish tank and a carpet where you can play games! You can click and drag the images below to look around the waiting rooms. You can also click the blue and white plus signs to find out a little more information. There is also a scene description available if you click the 'i' icon in the bottom left corner of the image.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=372>

If you're going to the dentist, maybe you'll wait over here in this waiting area! Both waiting areas are down the hall from each other.

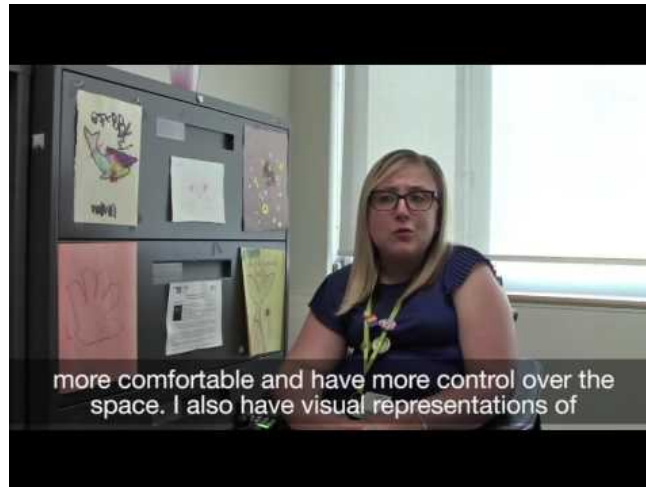


An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=372>

You will likely see someone who works at Holland Bloorview if you are in the waiting area.

They might ask you questions, move around with you, or talk about how you are feeling! Here is Gabby, one of our social workers, who makes sure you and your family will feel safe every time you come to an appointment.



A YouTube element has been excluded from this version of the text. You can view it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=372>

Choose where you want to go next!

[I want to get creative in the art spaces.](#)

[I want to go to the hospital lobby.](#)

I want to look at some books in the library.

I'm hungry! I want to go to the cafeteria.

I'm done looking around!

EXPLORE THE CAFETERIA

Melissa Ngo

Cafeteria

You've arrived at the cafeteria to get a bite to eat! Here, you can buy food and drinks during lunch time, heat up or toast something you brought with you, or sit with someone you know! In our cafeteria, staff, volunteers, students and families are welcome to have a break in a shared space. The big windows show that outside, there are lots of trees around. There is a door that leads outside where you can walk to Spiral Garden. You can click and drag the image below to look around the cafeteria. You can also click the blue and white plus signs to find out a little more information. There is also a scene description available if you click the 'i' icon in the bottom left corner of the image.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=956>

You might be asked to wear a mask when you come into the building. If you have to take off your mask and then put a new one on again after you eat, we have a few tips for you! Here's a video of our therapeutic clowns, Dr Flap and Nurse Polo, who can tell you the 'do's and don'ts' of putting on and taking off a mask. You might see them around when you come to Holland Bloorview – they are here to make you happy!



A YouTube element has been excluded from this version of the text. You can view it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=956>

Choose where you want to go next!

I want to get creative in the art spaces.

I want to see where I will have my appointment.

I want to look at some books in the library.

I want to go to the hospital lobby.

I'm done looking around!

EXPLORE THE FAMILY RESOURCE CENTRE AND HEALTH SCIENCES LIBRARY

Melissa Ngo

Family Resource Centre and Health Sciences Library

If you're looking for a quiet space to find a book, read, or use a computer, you've come to the right place: our Family Resource Centre and Health Sciences Library. Your family can also ask for more information and resources and you might find a book or two that you enjoy! You can click and drag the image below to look around the library. You can also click the blue and white plus signs to find out a little more information. There is also a scene description available if you click the 'i' icon in the bottom left corner of the image.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=954>

Here's a video below where you can hear about how the Family Resource Centre and Health Sciences Library can help your family!



A YouTube element has been excluded from this version of the text. You can view it online here:
<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=954>

Choose where you want to go next!

I want to get creative in the art spaces.

I want to see where I will have my appointment.

I want to go to the hospital lobby.

I'm hungry! I want to go to the cafeteria.

I'm done looking around!

THANKS FOR VISITING!

Melissa Ngo

We're so glad you came to visit Holland Bloorview Kids Rehabilitation Hospital online. When you get here in person, you might discover some new spaces that you like! But, we hope you'll recognize some of the spaces we showed you when you do come to the hospital with your family. You might even make some new friends. For now, thank you for visiting us online. We are looking forward to meeting you or seeing you next time!

We ask that you reflect on the following questions:

- How do you think this tour would make a family feel, if they haven't been the hospital before?
- What impact would kids have on this project as co-designers?
- Do you feel like you would benefit from seeing a hospital space before you enter it?

If you're interested in finding out more about this project or if you have questions, please email Melissa at mngo@hollandbloorview.ca.

Now that you've finished exploring, we hope you will go on some other adventures around the Inclusive Spectrums Exhibition.

Choose where you want to go next – one last time!

You can click on one of the two options below.

[Inclusive Spectrums Home Page – I want to look at more exhibits!](#)

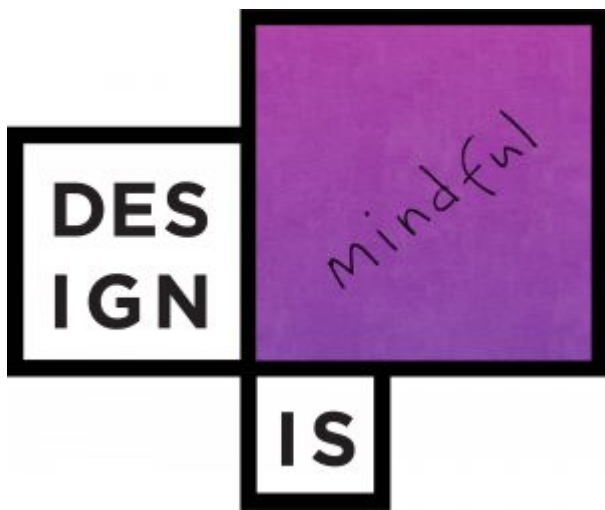
[Inclusive Spectrums Survey – I would like to share my ideas and opinions](#)

THEME 2: MULTISENSORY

Projects to explore around multisensory

- [Pre-Braille Implementation in Early Education by Jaime Hilditch](#)
- [Multisensory Graphic Communication for Blind and Partially Sighted Individuals \(BPSI\) by Mitali Kamat](#)
- [Inclusive Music Experiences for the Deaf and and Hard of Hearing by Wanqing Liu](#)
- [Accessible Assistive Technology Training for Blind and Partially Sighted Individuals by Erin Lee](#)

PRE-BRAILLE IMPLEMENTATION IN EARLY EDUCATION BY JAIME HILDITCH



Background

My name is Jaime Hilditch and I am a designer and writer located in Toronto, ON. My work tends to focus on knowledge sharing and inclusion for younger audiences (example project at [Jaime Hilditch](#)). During my Masters of Inclusive Design, I have tackled projects looking to assist individuals with visual impairments. An early project explored the creation of feasible braille signage for University campuses. My Major Research Project (MRP) will examine how implementing pre braille learning through in-class activities in preschool, might increase engagement and comfort with the braille language system. Not only will this be beneficial to visually impaired children, but visually able children as well. Creating collaboratively in the

classroom builds strong communication skills, problem solving techniques and teamwork, all of which are important to use, later on in adult life.

Introduction

Early education years build the foundation of spelling, reading, writing and grammar skills. There are a few gaps that present themselves when researching and understanding pre braille/braille education. Firstly, in the early stages of learning braille, which can last months, there is a common discomfort reading and writing braille. Secondly, there is a large disconnect and isolation between students learning braille and those who are not (those with visual impairments and those who are visually able). Thirdly, educational resources, such as braille books, seem to be inaccessible to a large portion of the families who need them, and training for educators teaching pre braille/braille is slim.

Pre braille determines whether an individual is ready to learn the braille code. Pre braille activities are multi-sensory, similar to activities used in Montessori schools. This multi-sensory approach helps build motor, concept development, auditory, tactile skills, etc. I have noticed an opportunity for inclusive, diverse learning, and a chance for kids of all abilities to play and work together.

This exhibition piece aims to educate viewers on the topics of pre braille and incidental learning as an opportunity for community engagement. It is my hope that through activities and discussion, the exhibition community will develop a more inclusive vocabulary when describing actions related to our senses. Those who are visually able will gain a stronger awareness of their less acknowledged senses, e.g., touch, taste, smell and hear, and will use this new knowledge to empathize with those who have visual impairments. In the following activities, we will develop an inclusive vocabulary to use in our day-to-day lives. The activities are described aurally with the hope visitors will listen and follow the steps, in particular, noticing how materials feel in your hands. The activities use: tracing, two-handed movement, finger dexterity and sensitivity, all of which are practiced during pre-braille learning.

PRE BRAILLE ACTIVITY

Jaime Hilditch

Activity Walk-Through

Below are three audio recordings, each following a different activity. All three activities will bring awareness to the senses and incidental learning opportunities. The discussion that follows (under 'Considerations' and 'Feedback') and community engagement (Google Doc) will hopefully lead to more inclusive conversations going forward.

Please choose the activity that best fits your living situation and the materials available to you during the pandemic. Transcripts are available directly after each recording.

Option 1. A Mindful Snack

Cooking is something we all do, approximately three times a day. Often a dish will remind us of a specific place, time and/or person. Cooking allows us to use all five senses, smell, touch, taste, hearing and sight. The next time you begin preparing a meal or snack, follow the guided activity below.



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A Mindful Snack Transcript

Gather your ingredients, listening to the rustling in the cupboards or the fan in the fridge.

Prepare the ingredients. Pay attention to both hands as you chop or wash the food.

If the ingredient came in a wrapper, notice how you grasp the packaging and use all fingers to open the contents.

Be mindful of the sensations when mixing or preparing the ingredients together. Do the ingredients have distinct textures, temperatures or weights?

While it is cooking, try to pick up any distinct aromas while taking deep breathes.

As you cook, describe aloud to a family member, or yourself if alone, what you are doing; your actions.

Reflect on the types of descriptors you just used. Did you express the ingredient colours? Or maybe the shapes of the foods?

Try closing your eyes, describe the textures and the emotions you feel creating this dish. Maybe memories or people come to mind...

Let the descriptors used to explain the tactility and emotions of this activity be the start of a new vocabulary.

Think about using these words in addition to sight descriptors the next time you explain something.

Option 2. Noticing Art

How many times throughout the day do you reach for a pencil or pen to jot something down?

In this activity, we're going to take a moment to notice what our senses are doing while mark making.



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Noticing Art Transcript

Gather a few art supplies or writing utensils you have at home, and a sheet of paper.

Pick up one of the utensils. Notice your fingertips as you roll the utensil between your thumb and index finger, and then between all fingers.

Hold the utensil to the paper and begin mark making. You do not need to draw anything in particular. Just move the utensil around the page noticing how it feels connecting with the paper.

As you draw, describe aloud to a family member, or yourself if alone, what you are doing; your actions.

As you switch to a different utensil, reflect on the types of descriptors you just used. Did you describe the colour, shade, or depth?

Those who are visually able will tend to jump toward using descriptors involving sight, which is normal.

Grasping the second utensil, try closing your eyes and begin drawing again.

Describe aloud the textures you feel, the experience using the tool, and how it sounds on the paper.

Rest the utensil next to the page. Did you notice a difference in the words you used

to describe your actions when your eyes were open and then when they were closed?

Let the descriptors used to explain the tactility and emotion of this activity be the start of a new vocabulary.

Think about using these words in addition to sight descriptors the next time you explain something.

Option 3. A Walk in Nature

We are often lacking time spent outside due to work, and currently the pandemic. If it is safe for you to go outside (it could be your backyard or down the street) place one headphone in your ear and take a walk with me as we use our senses to appreciate the outdoors.



An audio element has been excluded from this version of the text. You can listen to it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=49>

A Walk in Nature Transcript

As you open your door and take your first few steps outside, notice the smells and noises surrounding you. Maybe the air seems fresh, maybe you hear birds chirping in the near distance...or if you're in Toronto like me, the sound of construction and people talking.

Continue walking. When you come upon a patch of grass, bend down and place your hand on the ground. What does the grass feel like between your fingers? Is it spiky and dry? Is it soft? Possibly damp from the morning dew.

Find a nearby tree. Upon reaching the tree, graze your hand over the bark. Use your whole hand (from palm to fingertips). Does the bark feel different moving your hand across the tree horizontally versus up toward the leaves?

If the leaves are within reach, gently grasp one without pulling it off the tree. Feel the veins and marks between your fingers as you trace over the leaf.

If you spot a flower, stand next to it noticing any aromas or buzzing of insects.

As you stand in nature, describe aloud to a family member, or yourself if alone, what you are doing and what you're experiencing.

Reflect on the types of descriptors you just used. Did you express the colours of the flowers and plants or their height?

I invite you to feel the grass, stand next to a flower, or place your hand on a tree once again. With your eyes closed, describe aloud any textures and emotions you may feel.

Has closing your eyes changed your experience or heightened some of your other senses?

Let the descriptors used to explain the tactility and emotions of this activity to be the start of a new vocabulary.

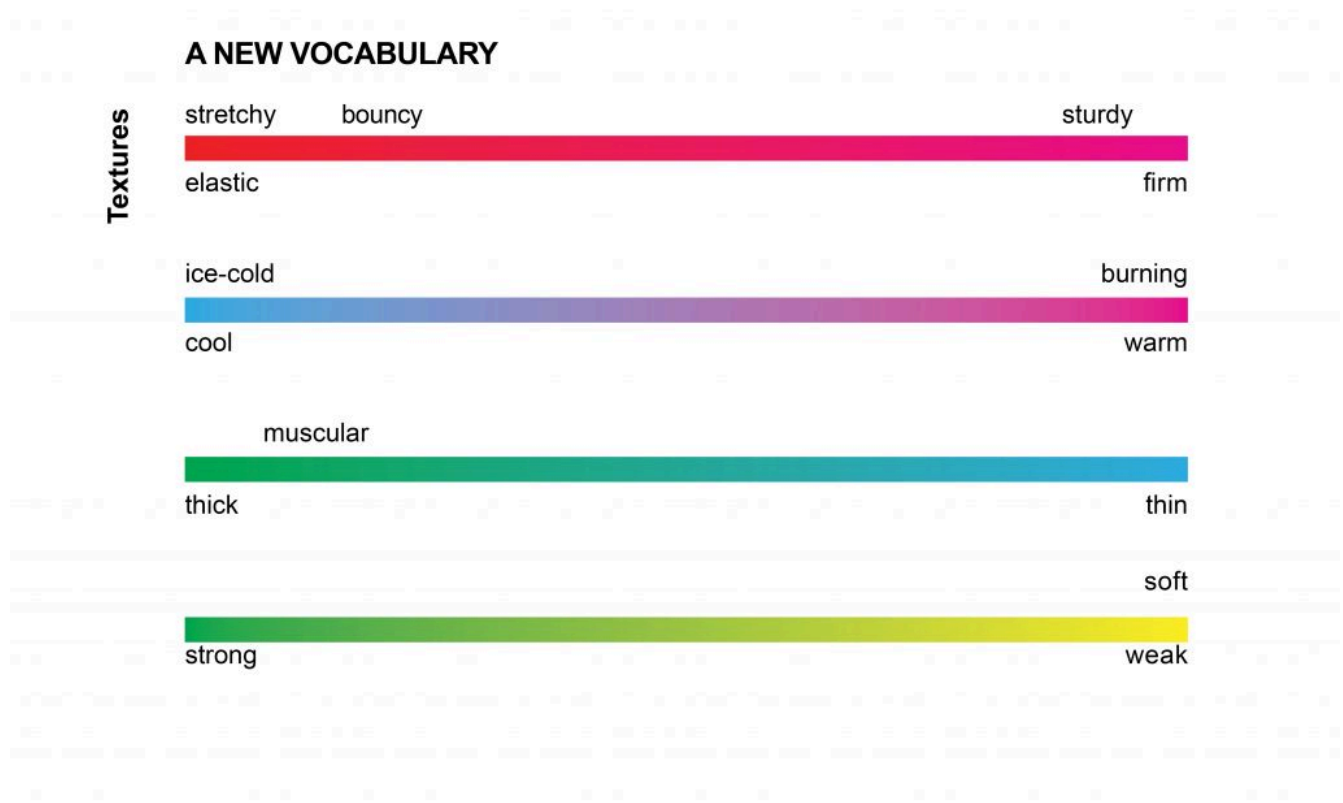
Think about using these words in addition to sight descriptors the next time you explain something.

CONSIDERATIONS AND FEEDBACK

Jaime Hilditch

Considerations

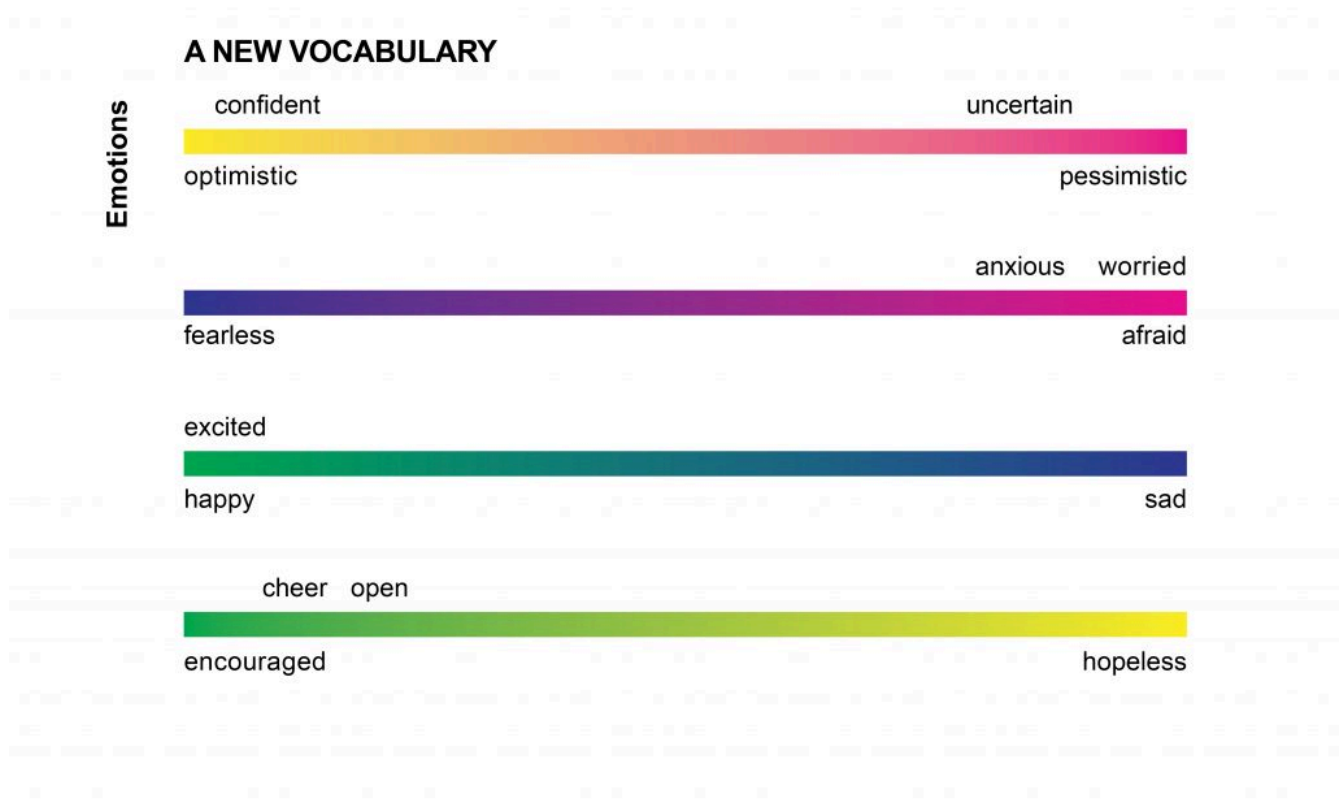
I've found through research, that texture-descriptive words are not always accessible to those who are blind or have vision impairments; many terms reference sight, for example: earthy, close-grained or gradation. I've left you with 30 texture and emotive-accessible terms on "A New Vocabulary" spectrum (located below). It is meant for use after participating in one of the three activities. Record any terms that may have come up during listening, making and reflecting in a digital or physical notebook. Please use, and reference this spectrum, as a reminder to be more descriptive, and aware of your descriptor terms when speaking with those who have visual impairments.



‘Texture Spectrum’ image. Vocabulary terms read left to right. Line 1: Elastic, stretchy, bouncy, sturdy, firm. Line 2: ice-cold, cool, warm, burning. Line 3: Thick, muscular, thin. Line 4: Strong, soft, weak.

Record any terms that arose during activity listening, making and reflecting.

Record in a notebook, on a loose piece of paper, or on notes in your phone and/or tablet.



‘Emotion Spectrum’ image. Vocabulary terms read left to right. Line 1: Optimistic, confident, uncertain, pessimistic. Line 2: fearless, anxious, worried, afraid. Line 3: excited, happy, sad. Line 4: encouraged, cheer, open, hopeless.

Record any terms that arose during activity listening, making and reflecting.

Record in a notebook, on a loose piece of paper, or on notes in your phone and/or tablet.

Feedback

Please leave any questions, thoughts, and/or learning outcomes in the Google Doc, or reach

out via email: jaimehilditch1@me.com. The Google Doc will act as an exhibition piece in itself, as well as provide a direction for my further research and design. The Doc will allow us to gather as a community, observing and replying to others' interpretations of the activities.

[\[Google Doc Link\]](#)

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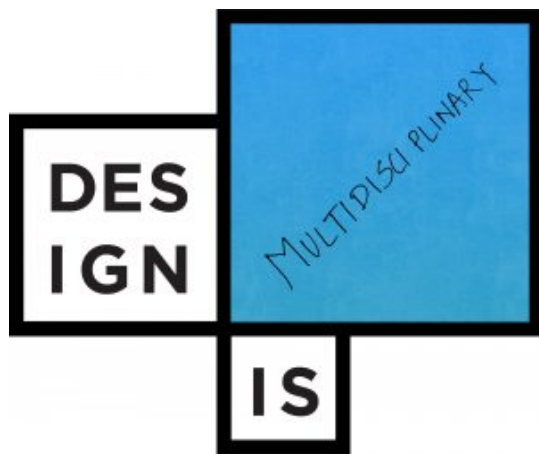
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MULTISENSORY GRAPHIC COMMUNICATION FOR BLIND AND PARTIALLY SIGHTED INDIVIDUALS (BPSI) BY MITALI KAMAT



Welcome to my exhibit and thanks for visiting!

Before you go ahead and explore I would like to give you a little bit of a background about myself. I was born and brought up in Mumbai, India and moved to the United States to pursue my Master's in Occupational Therapy in 2012.

After graduation I have largely worked with the pediatric population, I have been working as a school based occupational therapist in public school systems for over 6 years now. A few years ago I felt the need to explore the area of assistive technologies (AT) as most of the population I was serving had multiple disabilities and were largely AT users. The process of being trained in AT and exploring the world of AT introduced me to the field of inclusive design. I became increasingly interested in collaborating with design organizations and dabbled in building adaptive aids specifically designed for the students I was working with. I realized that it was the process of designing with collaborators from different fields of expertise and the students themselves that made my work life most meaningful.

In my major research project I plan on exploring the area of graphic communication for blind and partially sighted individuals and the importance of multisensory graphic communication tools. Multisensory aspects of drawing and writing and its impact on mental imagery has always been a topic of interest for me.

In my day to day work life I have frequently used multisensory tools such as wiki sticks, salt trays, sand, pipe cleaners etc to target letter formation in children with special needs. I plan on exploring multisensory components that can be integrated into a digital drawing tool for blind and partially sighted individuals. It has been an interesting journey till now and through the Master's in Inclusive Design Program I have had the opportunity to meet, collaborate with and learn from a diverse set of individuals. I have recently been collaborating with the [Institute of Human Centered Design](#) in Boston and working on a project focused on workplace inclusion for blind and visually impaired individuals.

“It was the process of designing with collaborators from different fields of expertise and the students themselves that made my work life most meaningful.”

You can connect with me via [LinkedIn](#)

To continue exploring this exhibit click on the tab on the bottom right corner of the page.

RESEARCH BACKGROUND AND OVERVIEW OF DRAWING TOOLS

Mitali Kamat

Background

Research shows that most blind learners often seek the help of a support worker to draw pictures or diagrams, or they avoid drawing because they find it difficult to believe that they would be able to create pictures or diagrams without the guidance from a sighted person and would not even make an attempt. Hence, expressing pictorial thinking for blind users through computers is limited. Subsequently, the need for self-reliant blind drawing techniques and technology has been recognised and highly valued among blind communities (Fernando & Ohene-Djan,

When sighted persons draw, they continually adjust their input based on visual feedback from the image that they are drawing. This process is essential for capturing a user's **mental model of the real world on a graphical medium**. Current drawing tools designed for blind users miss this element of feedback-based input.

April 2020). When sighted persons draw, they continually adjust their input based on visual feedback from the image that they are drawing. This process is essential for capturing a user's mental model of the real world on a graphical medium. Current drawing tools designed for blind users miss this element of feedback-based input. The potential of drawing for blind people has been experimented upon (Ishihara et al., 2006; Kamel & Landay, 2000, 2002; Lambert et al., 2004; Ricciardi et al., 2009) in the past. This work has gathered new momentum with three-dimensional (3D) printing (Williams et al., 2014), Hyperbraille (Leo et

al., 2017), haptic, speech technologies (Zhang et al., 2017), and sonification (Walker & Mauney, 2010)

This exhibit aims to provide an overview of analog and digital drawing tools and the idea of a multisensory graphic communication tool for blind and partially sighted individuals.

Analog Drawing Methods

For blind users, the most common analog methods to create tactile drawings are using raised line kits, form kits or some kind of handicraft methods [27, 8]. **Raised line kits** use special kinds of paper to draw on or add tangible structures to a standard sheet of paper. For example, special foils called drawing film, raise while applying a punctual pressure through a normal pen. Other techniques, such as **drawing on swell paper** or other heat sensitive materials use a pen with a heated tip to produce perceptible structures. Further common methods to create line drawings are **embossing with a spur wheel**, carving grooves into wooden plates or constructing line graphs through the connection of pins with rubber bands on a corkboard. Furthermore, the construction of more complex graphics through composition of predefined tactual primitives is quite popular. These primitives are delivered in tactile graph kits. They can be fixed on a drawing surface through magnets or Velcro (hook and-pile fastener). **A Velcro covered drawing board** is also utilized by a cheap technique for freehand line drawings [14]. Here, a self-made pen tube is used to position a wool thread on the drawing board. The tactile detectable thread sticks on the board. The tangible line can easily be placed, removed and changed. Beside simple graphics, very detailed pictures can be produced as collages out of everyday available material through handicraft (Bornschein & Weber, June 2017).

A variety of analog drawing tools using these methods are available examples of which can be explored in the video linked below.

[Visual Arts for the Visually Impaired: Drawing for Blind Students – Tools and Techniques](#)

Digital Drawing Tools

Kamel and Landay (Jan 2000) stated,

“An effective electronic drawing tool for blind users will open up communication between the sighted and the blind to the rich medium of graphical information. Such a tool would also offer a method for studying blind users’ mental models of the world.”

Digital drawing tools provide a distinct advantage to sighted user to be able to collaborate online, share information and ideas and represent graphs and statistical information in an efficient manner. There has been ongoing research to develop digital drawing tools with audio and haptic feedback systems to provide blind and partially sighted individuals with the ability to create graphical information and share it digitally. Beside applications supporting graphic transcribers through semi or fully automated transformation of images into a tactile representation, tools for a non-visual graphic creation from the scratch are available. Often such tools combine a graphic access with a graphic creation approach and address a particular domain, such as mathematics, graphs, charts or line drawings (Bornschein & Weber, June 2017). Examples of digital drawing tools with a description of the tools can be explored in the slideshow below.



An interactive or media element has been excluded from this version of the text. You can view it online here:

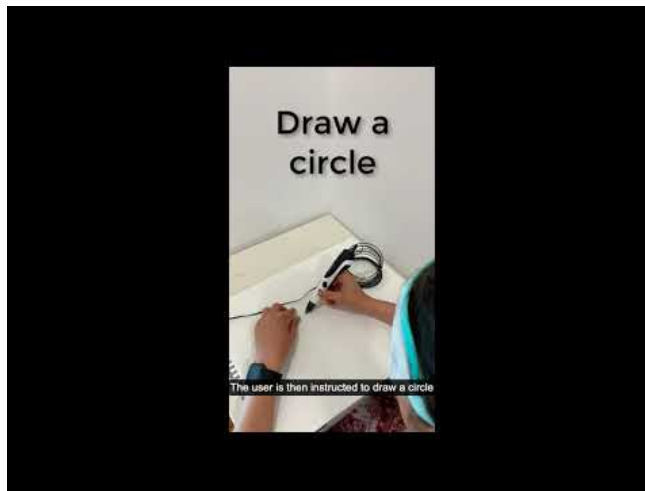
<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=654>

REFLECTIONS & CONSIDERATIONS

Mitali Kamat

Drawing With Touch:

In order to explore an alternate sensory feedback system for producing graphic information I conducted a simple experiment to encourage self reflection.



A YouTube element has been excluded from this version of the text. You can view it online here:
<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=848>

Considerations:

Although a lot of multisensory drawing tools are available currently, very few of the digital tools are widely used. Most significant limitations noted in tools currently available are that they are either too complicated i.e not intuitive enough or are too expensive.

What according to you would be the ideal multisensory drawing tool and what components should it have? I would love to hear more about your insights from this exhibit. Please leave your feedback on the exhibit in the form linked below.

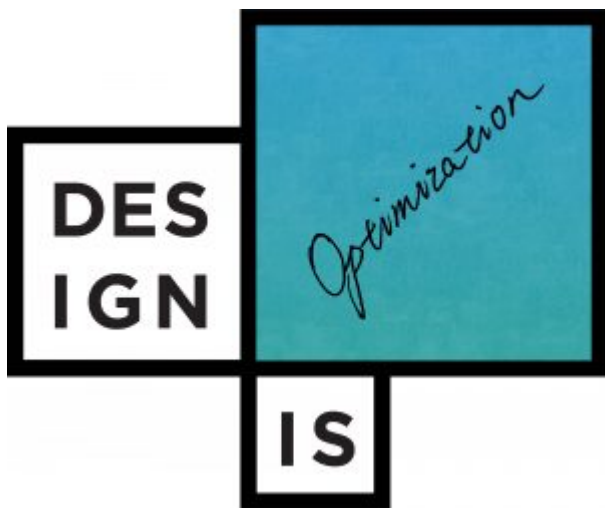
[Survey: Multisensory Graphic Communication Tools for Blind and Partially Sighted Individuals](#)

You can also reach me at mitalikamatot@gmail.com

I will also be conducting a synchronous session from 3:00-4:00 p.m August 9th to explore Non-Graphic Modeling. In this session participants will get a chance to explore building a neuron from a text only description. If you would like to participate in this session please click on the following zoom link [Zoom Meeting Link for Non-Graphic Modeling](#)

Thank you so much for visiting, I hope you enjoy exploring the other exhibits!

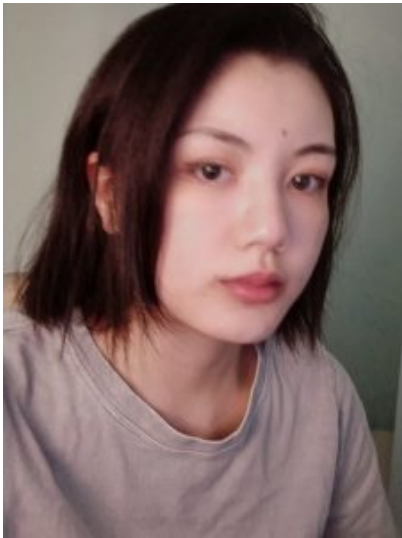
INCLUSIVE MUSIC EXPERIENCES FOR THE DEAF AND AND HARD OF HEARING BY WANQING LIU



Welcome to my exhibit of my major research project. My MRP topic is inclusive music experience for the D/deaf and hard of hearing. This exhibit aims to show my current exploration and future direction in the topic, including the background, knowledge gap, and my demo, etc. Visitors will interact with multimedia to put themselves in the shoes of the d/Deaf and hard-of-hearing, and realize the importance of improving music accessibility.

If you have any suggestions, questions or want to discuss with me, please

contact me via email: 3180852@student.ocadu.ca



Wanqing Liu is an industrial designer graduated from South China University of Technology.

The key areas which she is passionate about are toy design, graphic design and assistive product design. She believes that the role of designers is to coordinate the relationship among human beings, objects and environment, with their creativity and empathy. With the enthusiasm for that, she is now participating in the Inclusive Design program and would like to apply inclusive design principles into her future design.

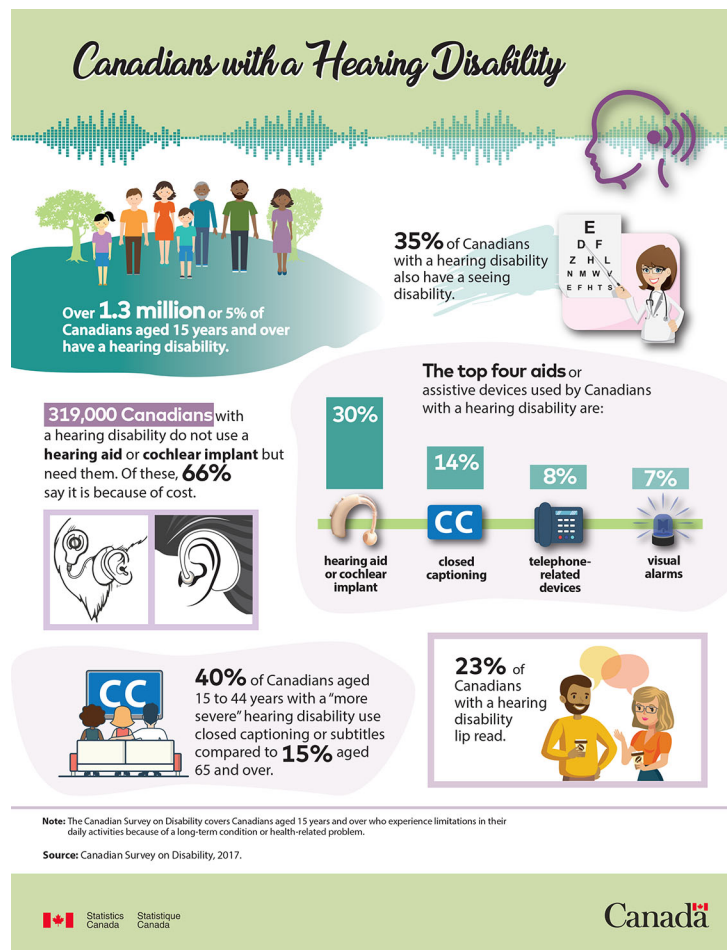
RESEARCH BACKGROUND

Wanqing Liu

Why This Topic?

“It is a common misconception amongst normal hearing adults that those who identify as deaf or hard-of-hearing do not participate in music listening or do not enjoy music.
“(Watkins, 2017)

This misconception may be due to an absence of information or education surrounding the subject of music and the deaf community. As compared with research on the improvement of speech and aural skills in deaf or hard-of-hearing individuals, there is little to no research on the attitude toward music from the deaf perspective. In fact, many d/Deaf and hard-of-hearing individuals are interested in music-related activities, including but not limited to music listening, playing instruments, attending music performance and dancing.



Pic 1 Canadians with Hearing Disability – Statistics Canada, (2019)

According to Statistics Canada, over 1.3 million or 5% of Canadians aged 15 years and over have a hearing disability, which shows that there are many potential audiences for this topic.

However, what have been done is far from enough. Most music platforms haven't paid enough attention to the inclusiveness for hearing-impaired users. And the common existing way to help them listen to music is specially-made hearing aids, but it is too expensive for most people to afford, and doesn't work well in live music performance.

Knowledge Gaps

- Lack of understanding of the d/Deaf and hard of hearing individuals' preferences

- Lack of research focusing on the perceptual and cognitive perspectives of translating music into multi-sensory format (some ways translating music into other senses like visual displays may be inaccurate and confusing for the audiences)
- Little research has specifically addressed the question of how to optimise the musical experience for the d/Deaf and hard of hearing (Nanayakkara et al. ,2013)

Problem Statement

Music is important physically, emotionally, intellectually, socially, and spiritually for everyone (Petress, 2005) and hearing impairment can prevent people from enjoying music, but the question of how to optimize the d/Deaf and hard of hearing individuals' musical experience didn't aroused enough attention.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=61>

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WARM-UP ACTIVITY

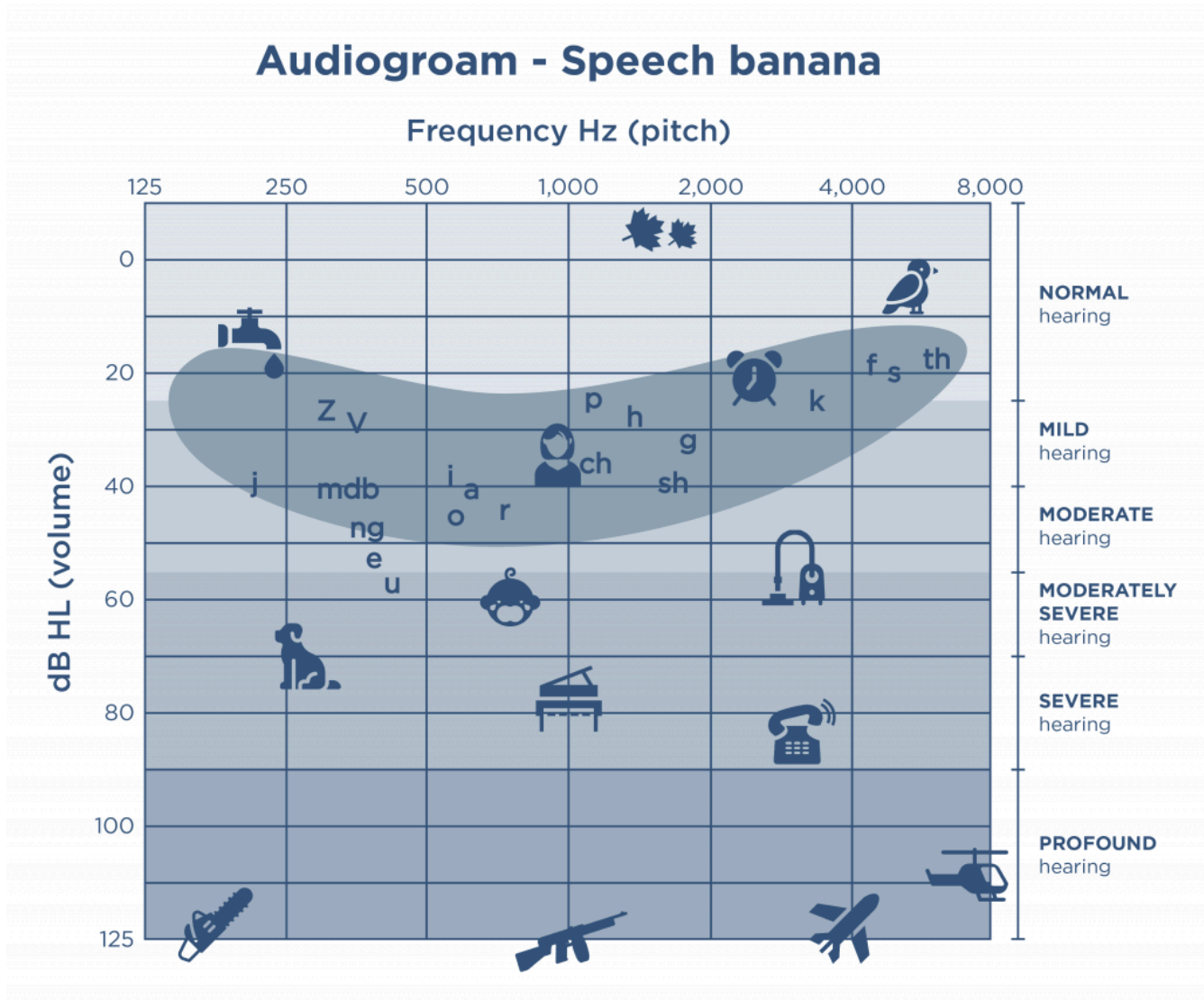
Wanqing Liu

About Audiogram & Hearing loss

An audiogram is a graph or chart that measures hearing sensitivity, which also shows the result of hearing test. Its X axis represents frequency (or pitch) measured in hertz(Hz), and its Y axis represents loudness (or volume) measured in decibels(dB).

The frequencies on the audiogram start at the lower frequencies (or deeper pitches, such as a dog barking or the sound of a electric saw) on the left and move to the higher frequencies on the right (such as birds chirping or bells ringing); similar to keys on a piano. Moving from top to bottom on the audiogram measures loudness in decibels (dB). The further down on the graph, the louder the sound needs to be in order to be heard.

All the letters of the alphabet except /q/, /w/, /x/, and /y/ are within the speech banana. Also within the speech banana are the letter combinations /th/, /ch/, /sh/, and /ng/. Those letter combinations can be difficult for deaf and hard-of-hearing people to hear and understand. One use of the speech banana is to help visually understand what sounds are not audible.



Pic 1 Audiogram - Speech Banana

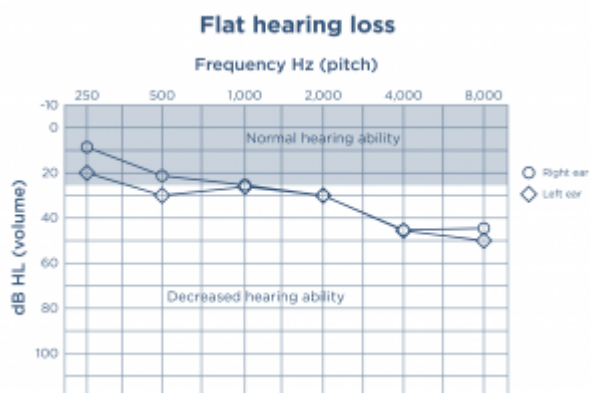
In the audiogram above, normal hearing ability is represented in the first blue shaded area above the 25-dB line. If your threshold symbols fall in this area, your hearing ability is considered within normal limits. Any symbols below that area, however, indicate hearing loss at those frequencies. Hearing loss is often classified as slight, mild, moderate, moderate-to-severe, severe or profound. They will also describe the pattern of your loss, generally as flat, sloping or rising. Moreover, it can be single-sided (unilateral) or both-sided (bilateral).

How Will Music Sound If Some Frequencies

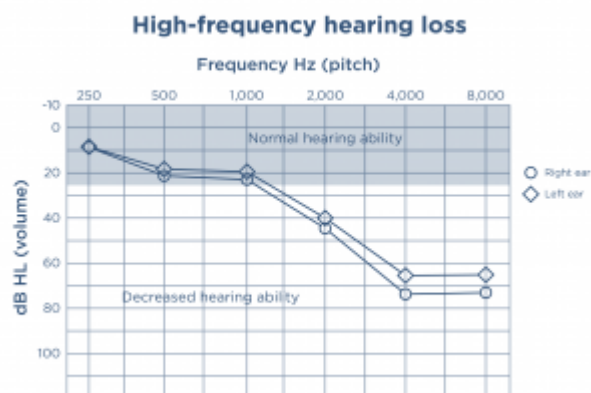
Are Lost?

If you are curious about this question, just play the matching game below!

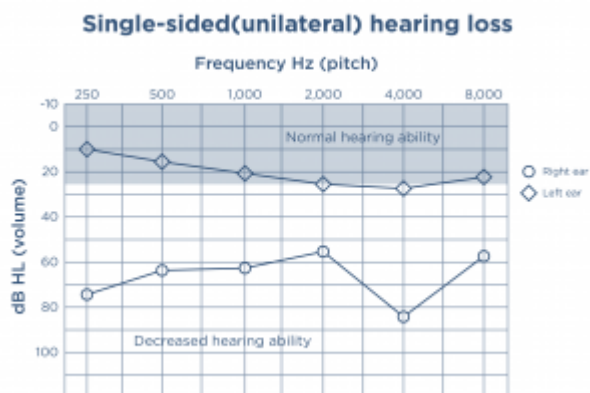
The four processed audios are made according to the data in the graphs below:



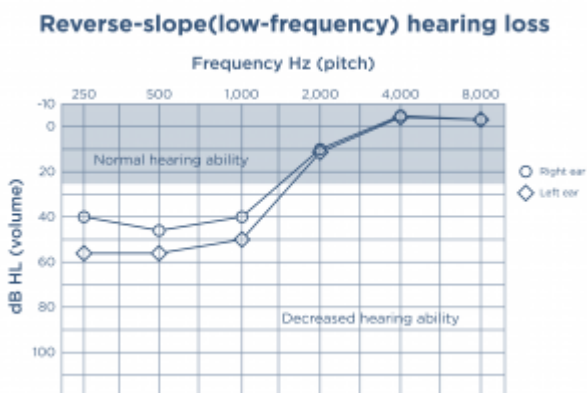
Pic 2 Audiogram - Flat Hearing Loss



Pic 3 Audiogram - High-f



Pic 4 Audiogram - Unilateral Hearing Loss



Pic 5 Audiogram - Reve

Warm-up Activity – Matching Game

Please listen to the following audios and match them to different types of hearing loss.

Music: Siesta – Jahzzar (retrieved from https://freemusicarchive.org/music/Jahzzar/Travellers_Guide/Siesta)

*In order to protect your hearing, after listening to processed audios (Type A to D), please first lower your headsets volume before listening to the original one, then you can adjust it to a suitable level.

Original version



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Type A



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Type B



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Type C



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Type D



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Drag your choices into the blank boxes to answer.

Each box can only contain one choice.



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=507>

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MUSIC VISUALIZATION DEMO

Wanqing Liu

Recently, I found music visualization can be one of the possible approaches to immerse individuals with hearing loss in music and help them feel the part that cannot be heard, and it is also an artistic, interactive visual format to show the beauty of audio properties.

Music Visualization

Music Visualization means transforming music into visual formats, such as graphics and animations. The changes in the music's loudness and frequency spectrum are among the properties used as input to the visualization. Effective music visualization aims to attain a high degree of visual correlation between a musical track's spectral characteristics such as frequency and amplitude and the objects or components of the visual image being rendered and displayed.

What Is Processing?

Processing is an open-source graphical library and integrated development environment (IDE) built for the electronic arts, new media art, and visual design communities with the purpose of teaching non-programmers the fundamentals of computer programming in a visual context. In other words, it is super useful for artists or designers to present their ideas through coding.

Music Visualization Demo Made by Processing

Watch demo video and imagine what the original music sounds like.



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=1300>

Please listen to the original version music to see if your imagination is correct.

*Lower your headset volume before listening to the original music if you just finish watching the video.

Original music: Fragmented – Gavin Luke



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=1300>

It is obvious that if high frequencies are lost, the space of sound, the reverberation and the details of instruments will be weakened. And that can lead to the loss of the information (like emotions) to be conveyed.

In order to minimize the influence of high-frequency loss, I built this demo. It was created by Processing, based on my personal feelings when I listened to this song. First, this song is in a sad, sentimental mood, so its colors are in a cold tone. I also would like to reflect its floating part, thus purple, which gives a sense of mystery and futurism, was chosen. The outer ring of purple wave, moving according to the song's waveforms, is made to display the ambient reverberation and the space of sound. The center circle is controlled by loudness and beats, to provide information about these properties. I added shining blue or green circles (controlled by both waveforms and loudness) to the demo to symbolize light spots in the dark, because I feel a sense of hope in this song even though it's in a sad mood.

I am just a very beginner at Processing, so my demo is just the very beginning of my exploration of music visualization, especially my MRP audiences are deaf and hard of hearing. In addition, my demo is only based on my own feelings, which must be not accurate in transforming. My future steps will be cooperating with deaf or hard-of-hearing individuals to learn their thoughts and iterate my design.

Music visualization is not necessarily the future direction of my MRP, but I believe that it will be a valuable exploration.

Survey & Feedback

This is a simple anonymous survey to help me evaluate my exhibit and my design ideas. Participation will be completely voluntary (no stress!), but I will be glad to hear any feedback!

It has to be noticed that:

- The data will not be used in my MRP
- Its purpose is to evaluate my exhibit activities and medias, and to see your opinions on

my design ideas

- Your participation is completely anonymous and voluntary
- All your answers will be deleted after this exhibition event
- All your answers will not be disclosure to others.



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ACCESSIBLE ASSISTIVE TECHNOLOGY TRAINING FOR BLIND AND PARTIALLY SIGHTED INDIVIDUALS BY ERIN LEE

Welcome to my exhibit.

My name is Erin Lee and I am a Master's student in Inclusive Design at OCAD University.

Currently, I am conducting a Major Research Project on the Participatory Design of Accessible Assistive Technology Training for Blind and Partially Sighted Individuals (BPSI). Over the next year, I will be working with the Canadian National Institute for the Blind (CNIB) to conduct this project. I seek to advance work in the understanding of, development and application of accessible assistive technologies used in the employment setting for BPSI.



In addition to being a student I also work as a communications professional at the Office of Health Equity at the Centre for Addiction and Mental Health (CAMH). I was largely drawn to this topic because employment is a major social determinant of health. I am passionate about working towards reducing disparities and avoidable inequities for marginalized populations. Through this research, I'd like to contribute to work that addresses issues of employment equity for BPSI.

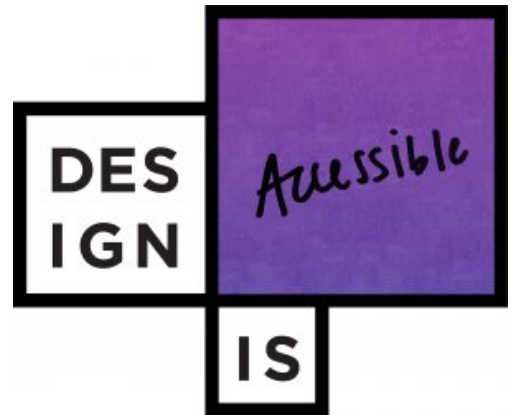
Exhibit profile

This exhibit introduces challenges related to employment that blind and partially sighted individuals (BPSI) face. It also showcases the BPSI experience with using assistive technology in the employment setting.

The visitor will be asked to walk through an assistive technology experience by completing an activity that depicts multiple points of access that BPSI may use to gain information from an image on a screen. This activity shows just one example of many technological barriers that BPSI may face in the workplace. Visitors may also develop an understanding of what it's like to use alternative text, particularly when engaging with something like complex images (e.g. infographics, bar charts, etc.).

Further, the exhibit asks the visitor to share and reflect on previous technology training that they have experienced for use in the employment setting. Through an interactive activity, I seek to understand the path at which learning technology naturally occurs in one's life.

I hope that you find this exhibit informative in some way and that it may be helpful in understanding the BPSI experience of learning technology for the purpose of employment.



If you'd like to learn more, please click *"Next: Background: Employment and blind and partially sighted individuals (BPSI)"* on the bottom right hand side of the screen to get started.

BACKGROUND: EMPLOYMENT AND BLIND AND PARTIALLY SIGHTED INDIVIDUALS (BPSI)

Background

The 2017 Canadian Survey on Disability reported 1.5 million people with a seeing disability, this represents 5.4% of the population over the age of 15 and 9.7% of the population over the age of 65 (Morris et al., 2018). The number of people living with a seeing disability is projected to double by 2031 (CCB, 2019).

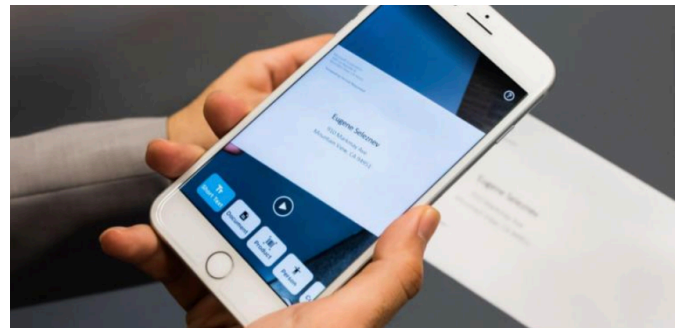


Image attribution: CNIB

Blind and partially sighted individuals (BPSI) face barriers to finding employment. These barriers may include inadequate training or experience, unsuccessful past attempts looking for work and accessibility issues (Bizier et al., 2016). **Of these challenges, assistive technologies and training for these technologies have been noted as some of the main barriers (CCB, 2019).** There is an urgent need to address employment barriers for BPSI. Particularly in the current digital age, where information and communication technologies (ICTs) can be visually biased.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=1191>

To move to the next section, please click “*Next: Activity 1: Multiple points of access*” on the bottom right hand side of this page.

References

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ACTIVITY 1: MULTIPLE POINTS OF ACCESS

Erin Lee

Activity background

This activity is intended to encourage the visitor to recognize the experience of understanding both an informative and complex image for blind and partially sighted individuals (BPSI). You will be asked to access the image using multiple points of access (e.g. text description, assistive technology).

The activity is structured with a cascade model. It is encouraged to work through the steps in numerical order to experience the methods that BPSI use to access information from an image. In addition, I encourage you to consider what it is like to receive a text description in place of the image and consider what information is lost in this translation when the final image is revealed.

This activity is estimated to take **15-20 minutes** to complete both parts which are; the informative image and the complex image. It is suggested that you complete both parts to obtain the full experience of working with different types of images.

Please note, the goal of this activity is to encourage individuals who do not use assistive technology to better understand the challenges faced by BPSI with accessing content from an image. If you are blind or partially sighted and would like to skip activity 1, you may consider moving onto activity 2 by clicking *“Next: Activity 2: Share and reflect.”*

Part 1: Informative image

Informative images convey “a concept or information that may be expressed in a short phrase or sentence” (W3, 2019). The alternative text or text description should contain a description of the meaning of the content that is displayed in the image.

Please walk through the following steps to obtain the information conveyed by the image from multiple access points.

Step 1: Alternative text

In order to access the content in this image, oftentimes alternative text is provided of what the image conveys. Screen reader users may use software such as Jaws, NVDA or VoiceOver to access this content.

Please take a moment to read the alternative text of the image that we are exploring in this activity. The actual image has been deliberately left out of this step and will be revealed as you complete each step.

Alternative text of the image

Six swimmers racing against one another in individual lanes. The stroke they are swimming is butterfly.

Step 2: SeeingAI

This step of the exhibit requires you to download a free app. If possible, please access the

source from which you may download apps. This might be either your App Store, Google Play, Playstore, etc. and **download “SeeingAI.”**

SeeingAI is a free app developed by Microsoft that brings together the cloud and AI for an intelligent app, it is intended to help users navigate the world. This app translates the visual world into an audible experience. The user can hold their phone up, to hear information about the world. This can be used to recognize a number of things; including text, documents, people or scenes.

Instructions

Once the app has downloaded:

1. Open the app
2. On the bottom of the screen there are options to choose the type of object you are interacting with. For this image, click “Scene”
3. [Open this image](#)
4. You now have to capture the image. To do this hold your phone up to the computer screen and click anywhere on your phone screen to capture the image
5. Allow it to process
6. Read the description

In the next section “*Part 2: Complex image*” you will have the opportunity to walk through the same two steps with a complex image. Once part 2 is

completed there is a reflection section highlighting some key takeaways.

Part 2: Complex image

In this part you will explore a complex image, through an infographic that explains the three dimensions of inclusive design. Infographics are considered a “complex image [that] contains substantial information- more than can be conveyed in a short phrase or sentence” (W3, 2019). Graphs, charts, diagrams and illustrations may be used in the employment setting, for individuals using assistive technology these complex images can often be difficult to access the meaning. For complex images, alternative text are required in two forms. A short or text description is used to provide a quick overview of what the image conveys. A long description is a textual representation of the essential information that the image conveys.

Step 1: Alternative text – long description (textual representation)

Infographics like the one we will explore on the three dimensions of inclusive design may be tagged to be made accessible, or often alternative text and a long description may be provided.

Please take a moment to read the long text description of the three dimensions of inclusive design. The actual image has been deliberately left out of this step and will be revealed as you complete each step.

Textual representation

The infographic shows the three dimensions of inclusive design. The three dimensions are depicted by three interconnected circles, each with branching circles depicting sub-topics of each dimension. The first dimension is recognize diversity and uniqueness. As individuals spread out from the hypothetical average, the needs of individuals that are outliers, or at the margins, become ever more diverse. Most individuals stray from the average in some facet of their needs or goals. This means that a mass solution does not work well. The second dimension is inclusive process and tools. Inclusive design teams should be as diverse as possible and include individuals who have a lived experience of the users the designs are intended for. This also respects the edict “nothing about us without us” without relegating people with disabilities to the role of subjects of research or token participants in design exercises. The third dimension is broader beneficial impact. It is the responsibility of inclusive designers to be aware of the context and broader impact of any design and strive to effect a beneficial impact beyond the intended beneficiary of the design (IDRC, n.d.).

Step 2: SeeingAI

Please note, if you’ve already downloaded the app in step 2 of part 1 you can move on to the blue box below to walk through this step.

This step of the exhibit requires you to download a free app. If possible, please access the source from which you may download apps. This might be either your App Store, Google Play, Playstore, etc. and **download the app “SeeingAI.”**

SeeingAI is a free app developed by Microsoft that brings together the cloud and AI for an intelligent app, it is intended to help users navigate the world. This app translates the visual

world into an audible experience, the user can hold their phone up to hear information about the world. This can be used to recognize a number of things; including text, documents, people or scenes.

Instructions

Once the app has downloaded:

1. Open the app
2. On the bottom of the screen there are options to choose the type of object you are interacting with. For this example, click “Document”
3. [Open this image](#)
4. You now have to capture the image. To do this hold your phone up to the screen and click anywhere on the screen to capture the image
5. Allow it to process
6. Read the description

Step 3 (Final step of both parts): Reflection

Take a moment to consider the information you received in the first two steps of both parts of this activity compared to the actual image.

[Access the image from option 1, informative image.](#)

[Access the image from option 2, complex image.](#)

It may have been observed that screen readers will provide the level of detail that a text alternative offers. Alternative text and long descriptions are particularly important for blind and partially sighted individuals when accessing information in an image. **Were you able to take a moment to consider what is lost in translation?**

The second step, SeeingAI, may have demonstrated that while new technology shows promise it isn't always reliable in conveying the full meaning of the image. This was particularly evident with the complex image, the infographic of the three dimensions of inclusive design.

Blind and partially sighted individuals (BPSI) vary in how they may access technology. Often, they develop workarounds and strategies for receiving information provided on their computer. While new and emerging technologies have the potential to open up a new method of access for information there is still much room for these technologies to be developed and fully meet the needs of BPSI in the workplace.

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Web Accessibility Initiative. (2019). Informative images. Web Accessibility Tutorials.

<https://www.w3.org/WAI/tutorials/images/informative/>

ACTIVITY 2: SHARE AND REFLECT

Erin Lee

Activity background

In this activity I ask that you engage with a brainstorming exercise. If possible, I'd like you to share and reflect on your experience with learning technology related to employment. For instance, how you learned Microsoft Office. The results of this activity may inform my research as I seek to understand instances of how individuals naturally learn technology used in the employment setting.

My example: I don't recall a moment when I specifically sought out technology training that I currently use on the job. However, through school, both high school and university, I started to develop skills in Microsoft Word, Email, PowerPoint which are all programs I frequently use during the work day.

In this shared google doc you will find four prompting questions. Please take a moment to answer the questions in the document.

[Enter the activity here.](#)

FEEDBACK: WHAT DID YOU THINK?

Erin Lee

Thank you very much for taking the time to virtually visit my exhibition.

As I embark on my Major Research Project, I hope to use this exhibition to further develop my understanding of assistive technologies used by blind and partially sighted individuals.

I would love to know how you found my exhibition? If you do have a moment to complete a survey, it would be very much appreciated. The survey takes an estimated 3-5 minutes to complete. The results will be used to inform my next steps as I conduct my Major Research Project.

[Access the survey here.](#)

What's next for me?

Although the pandemic did provide an additional barrier to beginning my research, I've found a new rhythm working virtually. I will be continuing my research plan and conducting my activities up until April 2020.

Please don't hesitate to reach out to me if you have any questions, would like to learn more about my research or just to chat.

Send me an email at erin.lee@student.ocadu.ca

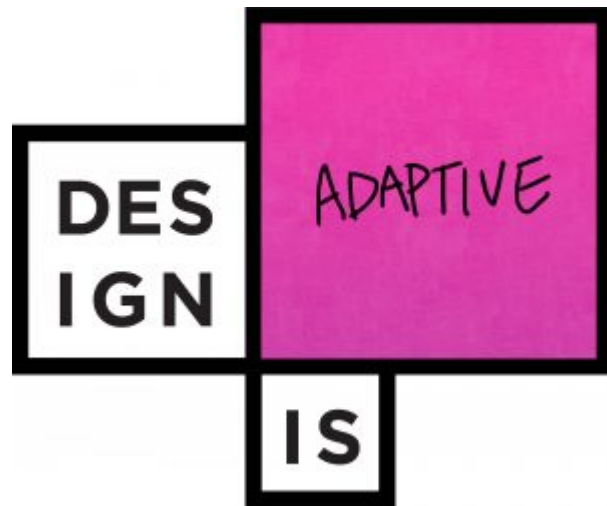
Connect with me on [LinkedIn](#)

THEME 3: STORYTELLING AND CULTURAL COMMUNITIES

Projects to explore around story telling and cultural communities

- [Virtual Communities for Chinese Seniors in Social Isolation by Christine Chung](#)
- [Absent Presence – Intergenerational Trauma and Healing through Oral History by Jennifer Cao](#)
- [Virtual Reality Storytelling for Older Adults to Overcome Social Isolation by Amna Azar](#)

VIRTUAL COMMUNITIES FOR CHINESE SENIORS IN SOCIAL ISOLATION BY CHRISTINE CHUNG



Introduction

My name is Christine, and welcome to my exhibit! I am a spatial and graphic designer and illustrator based in Toronto. My background is in architectural design and spatial accessibility has played an important role in my work in spatial design, graphics, and signage and wayfinding. Beyond spatial accessibility, I am passionate about gender and cultural identity and want to explore how I can refocus my design practice to consider accessibility and inclusivity within these contexts.

My research looks into the cultural barriers faced by ethnic minority seniors, specifically

Chinese, living in the Greater Toronto Area, and the effects of these barriers on health outcome and well-being in this population. The current pandemic has placed many seniors in a state of social isolation, and this can further exacerbate the negative impacts faced by the older Chinese population. My exhibit and MRP are focused on exploring the idea of designing culturally appropriate virtual communities for Chinese seniors living in the Greater Toronto Area (GTA) to maintain physical and cognitive health while in social isolation.

Exhibit

My exhibit will explore and test approaches to form culturally appropriate virtual community environments. Visitors will be led through activities prompting reflections on inter-generational relationships followed by a prototype demo/usability testing. This will involve testing a preliminary prototype and leaving virtual sticky notes to build a tapestry of memory and personal values. Visitors will be encouraged to complete a feedback survey which will hopefully provide additional insights into the components that will make up a final product.

To move on to the next part, click **Next: Research Background** in the bottom right corner of your screen

RESEARCH BACKGROUND

Christine Chung

Background on Gerontological Research in a Cultural Context

There is a vital need to improve the strategies for prolonging independence and quality of health in later life. According to the results of the 2016 census, Canada is home to 5.9 million seniors aged 65 and older. With the large cohort of baby boomers transitioning into this age group, the senior population will nearly double by 2030 (Statistics Canada, 2011).

Furthermore, this population is becoming increasingly diverse, and visible minorities represent a significant and growing share of the older population in Canada (Ng, Lai, & Rudner, 2012). Nearly 60% of seniors living in Canada are immigrants and 18% are visible minorities (Statistics Canada, 2011). Out of the various visible minority groups, the largest is of Chinese descent. As a result, the total population of ethnic Chinese is substantially increasing, accounting for 25.8% of all visible minorities and making it the largest visible minority group in Canada (Statistics Canada, 2011).

Despite changes in health as aging progresses, the desire to maintain autonomy for as long as possible and age in place also becomes more prevalent (Canadian Association of Occupational Therapists [CAOT], 2019). While enabling seniors to age in place positively contributes to their sense of wellbeing, independence, social participation, and health, there is no one-size-fits-all solution (Sixsmith & Sixsmith, 2008). Social equity in the context of aging in place exists when everyone has access to the opportunities necessary to safely and independently satisfy their essential needs, advance their well-being, and achieve their full potential in their homes or their communities for as long as they wish or are able (Howe, 2018). With respect to aging identities, social gerontology has acknowledged the socially constructed nature of aging, and has shown how old age and later life are socially and structurally constituted, represented, and understood (Buffel, Handler, & Phillipson, 2019). Yet the lives of people experiencing

disadvantage in later life can challenge this positive inclusive portrayal, particularly when compounded by cultural, social, and economic Circumstances.

The imperative to age in place draws on cultural understanding of place and home. The acquisition and maintenance of a home has become a sign of adulthood, competency, and independence (Penney, 2013). The home is considered the main arena to successfully age in place. Linking independence with “living alone” fails to take into account the various traditional cultural values that shape individual understandings of ideal physical environments for aging. Asian beliefs, including Chinese, stress collectivism and centrality of family over individualism thus multi-generational households are not uncommon (Lai & Leonenko, 2007). The Chinese culture places a strong emphasis on hierarchical relationships and providing care to the elderly family members, and thus the most common living arrangement of elderly Chinese is living in some form of familial household structure (Lai & Leonenko, 2007). While immigrant seniors are less likely to live alone than their Canadian-born counterparts, nearly 40% of single elderly Chinese immigrants reported to be living alone (Lai & Leonenko, 2007). Research indicates that seniors who live alone are likely to experience social isolation, limited social support, and overall negative health impacts (Gee, 2000). When considering the gender and cultural systematic barriers to aging in place, along with the clashing cultural ideals of individual independence versus the greater collective, the majority of older Chinese women living alone face compounded negative impacts to health, support, economic status and social connection.

Changing Communities & Aging

Studies reveal that fostering age-friendly community environments promotes social interaction in later life (Evans, 2018). Studies also show that social interaction can positively impact health status and overall well-being of older immigrants, reinforcing the importance of fostering positive community environments for aging minorities in Canada. The current pandemic places older populations under firm social distancing protocols, and the resulting social isolation can negatively impact the physical, cognitive, and mental health of seniors. Chinese seniors are not free from mental health problems and concerns — depression is a

genuine and emerging issue faced by Chinese older adults (Ng, Lai, & Rudner, 2012). Simple, regular activities are proven to help with depression. A recent study indicates that activities like tai chi and mahjong can have positive effects on the mental states of Chinese seniors (Zhang et. al, 2020). As the current pandemic recommends maintaining social distancing, alternative methods of participation via virtual environments are recommended to encourage regular participation in mental and physical activities while in social isolation (Nimrod, 2010). By combining activities tailored towards the Chinese senior community and a culturally appropriate virtual community to deliver these activities, it is hoped that this project can reduce the negative impacts on the mental and physical states of older Chinese people in the GTA.

To move on to the first activity, click **Next: Activity 1: Reflections on Pre-Pandemic** in the bottom right corner of your screen

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ACTIVITY 1: REFLECTIONS ON PRE-PANDEMIC

Christine Chung

Dear Grandma, I miss _____	Dear Grandpa, I miss _____	To my kids, I miss _____
Dear Mom, I miss _____	Dear Dad, I miss _____	To my grandkids, I miss _____

Purpose

The purpose of this activity is to gain a deeper understanding of the aspects of physical social interaction that people miss the most with their older loved ones.

A few notes before you begin:

- To see a preview of the board, click on the **blue pointer hand** on the box below
- To add to the board, please click [here](#) to open the board in a new tab

- To zoom in and out, hover over the bottom right corner and click + or –, or simply scroll up or down using your mouse's scroll wheel

Instructions

1. Choose a sticky that applies to you – click on it and press ctrl + c followed by ctrl + p to copy and paste a new sticky
2. Fill in the blank on your new sticky with something you miss doing with your loved ones before the pandemic
3. If more stickies apply to you, repeat steps 1 and 2 to fill out additional stickies

If you are having trouble navigating or accessing the board, please leave a comment with your response below

Goal

The goal of this activity is to collaboratively create a tapestry of memories and highlights of social interaction. It is hoped that this tapestry will help inform which key components of a virtual community environment for seniors (and their families) to include in a future designed solution.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=628>

To move on to the second activity, click **Next: Activity 2: Demo & Usability Testing** in the bottom right corner of your screen

ACTIVITY 2: DEMO & USABILITY TESTING

Christine Chung

Purpose

The purpose of this activity is to test an initial prototype of a potential design solution. Note: this is a preliminary prototype and not all parts are fully functional.

A few notes before you begin:

- To scroll through the app with a **mouse**: hover your cursor over the preview screen and scroll up or down using the **scroll wheel**
- To scroll through the app with a **track pad**: **left click and hold** on the white space and **drag up or down** using the **track pad**
- To expand the preview below to **full screen**, click on the white box in the **top right corner**
- To **exit full screen** and return to the exhibit, tap **Esc** on your keyboard

If you find yourself lost and want to navigate back to the beginning, hover over the bottom right corner and click Restart or tap R on your keyboard

Instructions

1. Click on any of the buttons to navigate through the application
2. You can switch between languages by tapping on the **EN | 中文** buttons
3. To go back to the home page, click on the back arrow button <

Goal

The goal of this activity is to gain insights into the usability of this potential design solution, as well as ideas for other components to add or remove.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=630>

To move on to the feedback survey, click **Next: Feedback & Considerations** in the bottom right corner of your screen

FEEDBACK & CONSIDERATIONS

Christine Chung

Thank you for taking the time to explore my exhibit. I hope you were able to learn more about the cultural barriers faced by ethnic minority seniors, specifically Chinese, living in the GTA, and the potential virtual strategies that can be implemented to address these barriers.

Feedback

I would greatly appreciate if you could complete a feedback survey on your exhibit experience. The survey should take no longer than 5 minutes to complete. The survey is completely voluntary and anonymous, and the feedback will be helpful in guiding me towards a better design solution.

Please click [here](#) to be directed to the survey which will open in a new tab.

Stay Connected

If you would like to keep in the loop with my research progress, explore my other work, or just say hi, you can head over to my website [here](#), and feel free to contact me at cjwh.chung@gmail.com.

ABSENT PRESENCE - INTERGENERATIONAL TRAUMA AND HEALING THROUGH ORAL HISTORY BY JENNIFER CAO

**ABSENT
PRESENCE**

Visit the 'Absent Presence' Oral History Archive (password: ocadu)

INTERGENERATIONAL TRAUMA AND HEALING THROUGH ORAL HISTORY

Jennifer Cao



**ABSENT
PRESENCE**

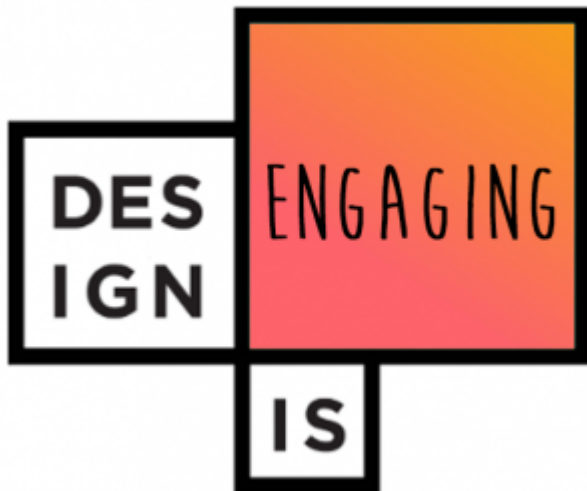
[Visit the 'Absent Presence' Oral History Archive](#) (password: ocadu)

VR STORYTELLING

DESIGNING VIRTUAL REALITY STORYTELLING FOR OLDER ADULTS TO OVERCOME SOCIAL ISOLATION

Amna Azhar

Welcome to my Exhibit!





Hello! Thank you for coming to my exhibit. I am Amna, a software developer by profession. As a graduate student in Inclusive Design, I am interested in doing multidisciplinary projects for the design and development of novel software and hardware applications focused on assistive and rehabilitation technologies. My research focuses on designing an immersive experience for older adults where they are able to share their life stories and communicate with others to stay socially engaged in life.

Direct Access

- Clone the git [repository](#).
- Check out the [demo](#).

Introduction

Social isolation is commonly defined as a low quantity and quality of contact with others, and includes “number of contacts, feeling of belonging, fulfilling relationships, engagement with others, and quality of network members” ^[1]. Socially isolated persons lack social contacts,

social roles and mutually rewarding relationships ^[2]. Older adults can suffer from social isolation due to several reasons such as their lack of mobility due to physical constraints, financial reasons or other; shrinking social network limiting to only close friends and family; and relocating to nursing homes away from family members, etc. It is important to provide opportunities where older adults can share their experiences, make connections, share cultural knowledge and oral traditions across generations, and build relationships with others in a positive and more supportive social environment. Storytelling is the oldest form of communication and conversational storytelling is known to encourage participation. My research looks into how we can leverage the engagement and immersion that VR offers and combine it with storytelling to develop a social experience for older adults to communicate and connect with others.

Motivation

Canada's population is aging rapidly as a growing proportion of baby boomers transition into their senior years. In 2015, for the first time, the number of persons aged 65 years and older exceeded the number of children aged 0 to 14 years. At the same time, as per the report of [National Seniors Council](#), the growth rate of the population aged 65 years and older was 3.5% – approximately four times the growth rate of the total population. Given the growing population of elderly, it is significantly important to evaluate the social impact of researching and improving the quality of life for older adults. Research shows it has a positive social impact on stakeholders and creates economic and social benefits. Happiness and wellness of adults is elemental to family members and promotes healthier relations. In a nursing home, happier residents translate to job satisfaction for staff members reflecting to fulfillment and decline in turn over. Healthy aging society means the government will see a decline in expenses on healthcare and social services for older adults.

Problem: Statistics show that as many as 43% of older adults feel socially isolated (Statistics Canada, Data 2020-2022). Social Isolation is detrimental to health. Social Isolation can lead to loneliness ^[3], the effects of which can result in cognitive, emotional and physical decline affecting life expectancy. ^[4]

The happiness and health of older adults means successful aging of older adults. Successful aging is characterized by three components as shown in Figure A (Rowe & Kahn, 1987) [5]. Table 1 shows how social isolation affects all three characteristics of successful aging:

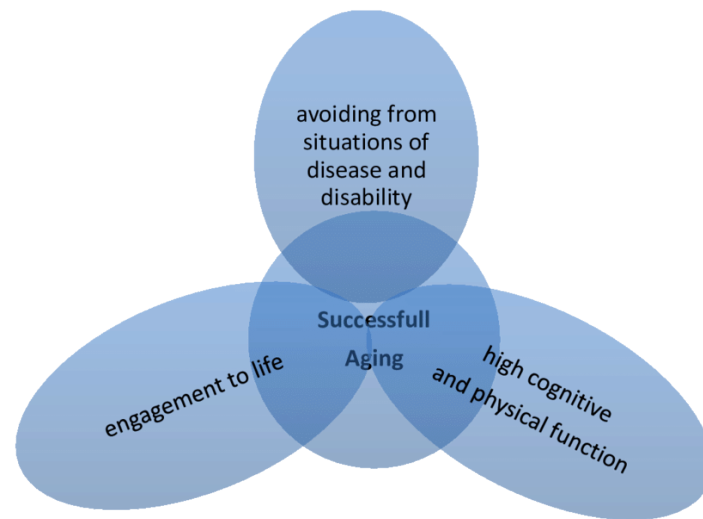


Figure A

Minimize risk of disease & disability	Social isolation will lead to increased risk of Alzheimer's, dementia etc. [6]
Active engagement with life	Social isolation leading to loneliness prevents individuals from engaging in conversation with people and have a positive outlook on life. They feel cut off from the world. [7]
Maintain physical and cognitive function	Social Isolation and loneliness can deter physical and cognitive stimulation by inducing depression. Depression is associated with lower rates of exercise and worse nutrition. [8][9]

Table 1

Design & Tools:

Storytelling:

One way to overcome social isolation is by communicating. Communication through

conversational storytelling is more participatory in nature and fulfills the psychological needs of being heard and listened to for older adults. ^[10] Being able to share experiences and communicate through storytelling means older adults relive past experiences that make them happy. Storytelling connects families that are living apart when grandparents pass down cultural knowledge in the form of narratives to their grandchildren which is proven beneficial for inter-generational bonding. Additionally, individuals feel good about themselves when they identify with the positive self-image they project in their stories. ^[11]

Storytelling may prove to be harmful when they are not facilitated.

Virtual Reality:

Virtual Reality (VR) is the use of computer technology to create a simulated environment which can be explored in 360 degrees. VR offers ‘safe’ immersion and presents realistic 3D perceivable experience. VR environments can be used to simulate interactive worlds full of gamified, engaging content. ^[12]

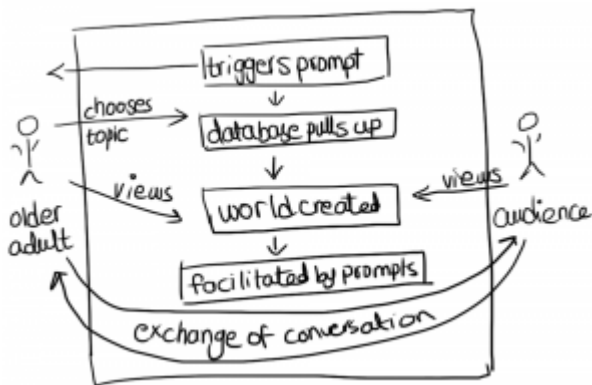
It is important to keep in mind that too much use of VR may cause cyber sickness, eye strain, and headaches, neck pain. Some visualizations can be startling.

The Idea:

Keeping in mind VR and conversational story ^[13] design guidelines, with the exploratory research done so far, the steps below describe my system’s design:

1. User (older adult) goes in Virtual Reality.
2. System prompts user to recall a memory through story prompts such as “Who” “What” “When” “Where”.
3. User talks about a place or event.
4. System Database pulls up sets of images or videos in 3D for user to go inside virtually.
5. User takes hold of the narrative eg: “I visited Brazil back in ...”.
6. System can give optional conversational prompts “What did you explore?”

- Audience get to experience, listen, ask questions, share their own experiences.



Prototype/Activity:

For the sake of rapid prototyping, I found out from my research that an effective story can be as short as 2-3 minutes in length and told in the first person, about a person, event or issue the narrator feels strongly about. The digital storytelling process typically recognizes many elements of storytelling, including the oral tradition, the writing process, the power of visuals, and the role of digital media in recording and sharing stories.

In the building of this prototype, I found the following questions helpful to answer in order to shape my idea better:

- 1) Identifying a place that will be the subject of the story.

Choosing a realistic hangout place such as a living room serves to “anchor” the story in a physical way.

- 2) Identify an audience for the story.

I am targeting a general audience and using visuals, contrasts, and audio to keep accessibility in consideration.

- 3) Identify a purpose for the story.

The purpose of the story is to create empathy for the audience to feel connected with the

user's life. Some of the variables that should be evaluated from the participation of the audience are:

Engagement: The incentive to look around, observe and spend time in the space.

Interaction: The user-friendliness of the interaction.

Communication: The meaningful connection made with the other person from the social experience.

Following is a preliminary prototype of how a 3D social experience can look like from the audience's point of view. The example simulates a hypothetical living room of our target user who is the older adult. The idea is to understand and interact with the virtual space of the older adult. VR allows you to feel fully immersed and gives a more realistic sense of presence. In this type of framework, the audience can look around and navigate freely in this virtual space of our user to learn more about their life. Even though in this prototype the user is an automated humanoid, the real design will have an actual older adult, depicted by their 3D model, who will communicate with their audience in real time wearing VR headsets. Therefore, anyone who enters will share the same virtual space to explore.

Clone the git repository [here](#).



A YouTube element has been excluded from this version of the text. You can view it online here: <https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=41>

Discussion & Feedback:

If you tried out the experience, let me know your thoughts on the exhibit in the Q&A session or reach me on email at amna.azhar@sudent.ocadu.ca. Thank you for your time!

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THEME 4: NEURODIVERSITY

Projects to explore around neurodiversity

- [Virtual Reality- Job Interview Training for Individuals with ASD by Mina-Mirjana Jevremovic](#)
- [Dungeons & Dragons & Neurodiversity: The Transformative and Life-Enriching Effects for Neurodiverse Adults by Caleb Valoroza-Jones](#)

VIRTUAL REALITY - JOB INTERVIEW TRAINING FOR INDIVIDUALS WITH ASD

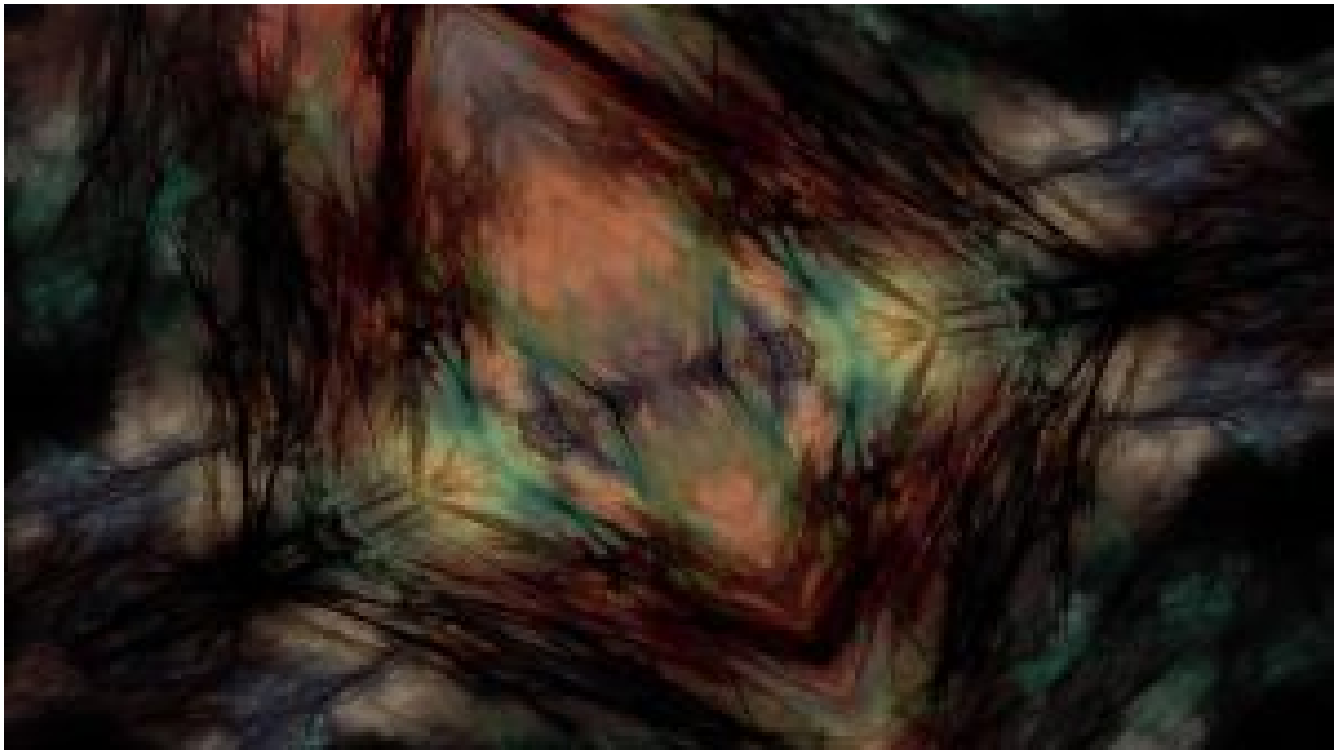
VIRTUAL REALITY - JOB INTERVIEW TRAINING FOR INDIVIDUALS WITH ASD

Mirjana Jevremovic

Job Interview Training for individuals on the autism spectrum using Virtual Reality (VR) technologies and Video Self-Modelling (VM) technique

To enter the exhibition, please follow the link.

[VR/VM Job Interview Training Exhibition](#)



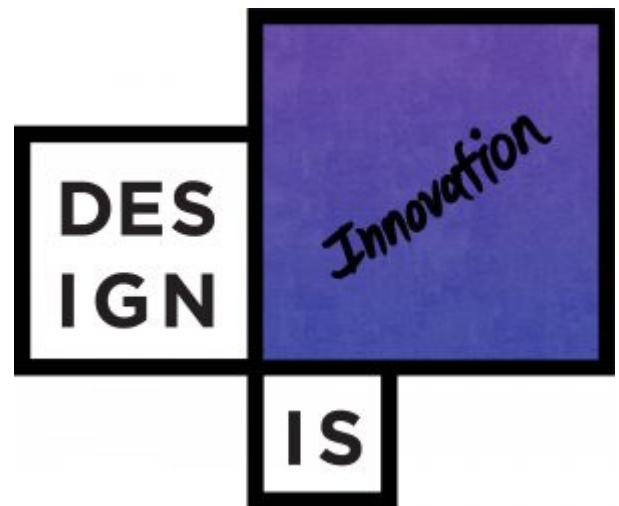
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DUNGEONS & DRAGONS & NEURODIVERSITY: THE TRANSFORMATIVE AND LIFE-ENRICHING EFFECTS FOR NEURODIVERSE ADULTS BY CALEB VALOROZO-JONES

Welcome, Adventurers! This exhibit is on Dungeons & Dragons and its transformative and life-enriching effects for Neurodiverse adults. Before we begin our adventure, you will learn more about:

- Dungeons & Dragons
- Autism and ADHD, and historically harmful and exclusive therapeutic practices
- Unique aspects of Neurodiverse culture, self-advocacy, identity and self-exploration



This virtual exhibit also has an interactive module that is accessible by the link below.

[Interactive D&D Module](#)

Questions, comments, or queries? Want to gush about D&D and research?
Connect with Caleb directly on Twitter [@qmrdr](#) or by email
[caleb.jones\[at\]student.ocadu.ca](mailto:caleb.jones[at]student.ocadu.ca)



Caleb Valoroza-Jones is an inclusive and equity focused UX Designer, food allergy ‘foodie’, and accidental rubber duck collector. A lifelong misfit and ‘[edge case](#)’, Caleb’s design ethos focuses on increasing representation of marginalized groups, with specific research interests in 2SLGBTQ+ studies, Neurodiverse and Autism studies, food allergies, and digital accessibility. When he’s not designing for his fellow misfits, Caleb loves to read, make music, play board games, video games and Dungeons & Dragons, and make grilled cheeses and pretzels.

INTRO TO NEURODIVERSITY

Intro to Neurodiversity

Caleb Valoro-Jones

Historically, autism has been considered a condition that requires treatment or curing. The standard therapeutic treatment for neurodiverse folks, especially autistic people, is Applied Behavioral Analysis (ABA) (Keenan et al., 2015). ABA is controversial because it typically aims to intervene or change neurodiverse behaviours, and instead condition people to perform Neurotypical ones. In ABA a behaviour is selected to be analysed and measured (usually by a child's parents or caregivers). Once the behaviour is measured, therapists choose and implement therapies to intervene or change the behaviour, and evaluate the outcomes resulting from the interventions (Keenan et al., 2015).

Instead of teaching and emphasizing neurotypical people to accept and be inclusive of neurodiverse behaviours, the onus is on the neurodiverse community to train neurodiverse people to change their behaviour through therapy (Devita-Raeburn, 2016). Adults with autism who underwent ABA therapy advocate against it, describing it as harmful, and

encourages masking and other actions which are harmful or mentally taxing for neurodiverse folks (Dellinger, 2019, p. 18).

Masking: when autistic people hide autistic traits and behaviours for the comfort or acceptance of neurotypical people. For example, hiding stimming or other self-soothing actions.

Masking and these other strategies can be draining, resulting in burnout and other negative physical and mental health outcomes. Historically, therapy and studies about autistic people do not include or co-create with autistic researchers, and operate using a medical model of

disability. Because of this, research about the neurodiverse community lacks understanding and nuances of autistic culture and needs of the autistic community.

Because research and treatment focuses on the medical model of disability, research on the unique abilities of autistic people is under researched (Woods et al., 2018, p. 977; Grove et al., 2018, p. 766). Critical Autism Studies builds on Critical Disability Studies theory, and applies the social model of disability.

The #ActuallyAutistic hashtag and movement aim to center autistic voices, experiences and scholarship.

#ActuallyAutistic started because the autism hashtag and autism organizations are dominated by friends and family of autistic people, instead of autistic people themselves. This aligns with the “Nothing About Us, Without Us” approach to disability and autism research, including autistic ownership of and participation in scholarship.

Special Interests are an intense focus or passion with different topics or hobbies (Grove et al., 2018, p. 766; Dellinger, 2019, p. 18)

study indicated that there is a significant and under researched relationship between the lives of autistic adults and their special interests. The study also indicated that special interests have a positive impact on autistic adults, especially in specific areas of their life (such as social contact, leisure, and extrinsic and intrinsic motivation), and that there are commonly

Under the **medical model of disability**, autism is a disability and is characterized by deficit-based definitions.

Under **social model of disability**, behaviour and disability is constructed by society and a result of mismatched interactions.

There are large research gaps about autistic culture, special interests, and neurodiverse affirming therapy. However, Critical Autism Studies researchers Grove, Roth, and Hoekstra (2018) conducted a study on how special interests motivate and affect the subjective well-being of autistic adults. This

reported special interest subjects. Among the commonly reported Special Interests include gaming, science-fiction, and fantasy, which overlap with Dungeons & Dragons.

Go to the next chapter to learn more about Dungeons & Dragons, or go to the [Interactive D&D Module](#)

INTRO TO DUNGEONS & DRAGONS

Intro to Dungeons & Dragons

Caleb Valoroza-Jones

About Dungeons & Dragons



[“Original Dungeons and Dragons Basic Rule Book – 1981 – Plus 2 Dugeon Modules”](#) by [Jennie Ivins](#) is under a [CC BY-NC-SA 2.0 License](#)

Dungeons & Dragons (or D&D, as it is affectionately known by its players) is a Tabletop Role-Playing Game (TTRPG) created by Gary Gygax and Dave Arneson in 1974. Dungeons & Dragons has become a cultural mainstay; it outlasted the “[Satanic Panic](#)” of the 1980s, has been [referenced in countless films, television shows, and podcasts](#), and nearing an apex of cultural consciousness and popularity.

The praise and enthusiasm of celebrity fans and players like [Vin Diesel](#), [Anderson Cooper](#), and [Stephen Colbert](#) and [many, many more](#) has

ushered in more curiosity and new players than ever before. The most recent 5th edition (released in 2014) helped bolster the game’s popularity by simplifying rules and gameplay, making the game more approachable for new and veteran players alike. So what is Dungeons & Dragons, how does it work, and what does it have to do with neurodiversity?

Gameplay Artifacts

All you need to play Dungeons & Dragons is a rulebook, pencil and paper, polyhedral dice, and your imagination.

Dungeons & Dragons takes place in the collective imagination of its players. Players create characters in an improvisational collective story that is overseen by the Dungeon Master. The Dungeons Master (DM) is the player that acts as the storyteller and referee of the game, enforcing the rules and gameplay of the collective players.

Player's Handbook

The current edition of Dungeons & Dragons is 5th edition, published by [Wizards of the Coast](#) (also well known for publishing the popular card strategy game Magic: The Gathering). The basic rules are available for free on the [Dungeons & Dragons website](#) or on [D&D Beyond](#). The physical rulebooks can also be purchased at most bookstores, as well as pre-made adventure books by Wizards of the Coast.

While D&D operates as a collective game of playacting and all player actions are imagined, the rules of D&D gives structure to the game. The outcome or consequences of player actions are unknown, and determine by random dice rolls, the rulebook, and the Dungeon Master.

Polyhedral Dice

Dice sets for tabletop games, including D&D, typically come with 7 polyhedral dice: a d4, 1d6, a d8, two d10s, a d12, and a d20. Each die has a different significant role in D&D for various attributes, although this depends on your race, class, weapons, and abilities.

Arguably the most important die in D&D is the d20; it is essentially the decider of dice, and determines if a player's attempted action is successful. Typically a player will use a d20 to see if they're successful, the Dungeon Master will determine if the action is successful and then instruct the player to roll another die to determine the action's damage.



[“Typical role playing game dice”](#) by [Diacritica](#) is under a [CC BY-SA 3.0 License](#)

Hover on the below platonic solids to learn which shape corresponds to which die.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=581>

[“Dice Platonic Solids”](#) by [Peter William Wright](#) and adapted by Caleb Valoroza-Jones is under a [CC BY 4.0 License](#)

Pencil & Paper

The main tool for playing Dungeons & Dragons is a player's [character sheet](#). Players create their character using the Player's Handbook (which is detailed in Character Creation). Traditionally, this is played with pencil and paper, where characters fill in the information and erase old information as their character levels up (which also allows for players to practice their math skills). Some players opt to use digital “pencil and paper” (like Word documents or

PDFs) to play where the player is still doing the calculations. However, there are digital toolsets like [Roll20](#) or [D&D Beyond](#) to digitally build and store your character (which can be enhanced with scripts to reduce the required math).

Maps & Miniatures



Photo by [Clint Bustrillos](#) is under the [Unsplash License](#)

As mentioned, all that is required to play Dungeons & Dragons is a rulebook, pencil and paper, polyhedral dice, and your imagination. D&D is designed to be able to play in the “Theatre of the Mind”; however, many D&D groups enhance their gameplay with maps and miniature figurines of their characters. These are not necessary to play by any means, but Maps & Minis Style can aid players’ ability to visualize action and also link to players’ other creative interests. Drawing maps and backgrounds, 3D printing and painting miniatures relates to players’ other creative interests and hobbies. Sometimes it’s less about using the miniatures, but more about the fun of creating them.

Character Creation

Players create characters with attributes (race and class) and abilities which affect gameplay. A character’s race, class, and abilities impact their ability to accomplish a task or action. Players are also encouraged to create backstories including personality traits, goals, bonds, and flaws to fill out their character (and help guide players on how to play their characters). How players role-play their characters is also informed by their abilities, which represent a character’s physical and mental strengths and weakness. The 6 abilities are represented by values are Strength, Dexterity, Constitution, Intelligence, Wisdom, and Charisma.

The most common metaphor D&D players use to explain abilities is using tomatoes!
?

- Strength is being able to crush a tomato
- Dexterity is being able to dodge a tomato
- Constitution is being able to eat a bad tomato (and survive)
- Intelligence is knowing a tomato is a fruit
- Wisdom is know not to put a tomato in a fruit salad
- Charisma is being able to sell a tomato-based fruit salad

Role-play and Play

A character's stats impacts their ability to successfully complete an action, just as in real life, your strengths and weaknesses affects the outcomes. Nearly anytime you want to do *something*, the Dungeon Master will ask you to roll a d20. The higher the roll, the better the outcome, and if it's something your character is strong at, your ability modifier is added to your roll. However, if it the action is one of your character's weaknesses, your ability modifier is subtracted from your roll. This mirrors how in real life you're likely to successful complete actions that

The D&D races from the basic rules are: Dragonborn, Dwarf, Elf, Gnome, Half-elf, Halfling, Half-Orc, Human, and Tiefling.

The D&D classes from the basic rules are: Barbarian, Bard, Cleric, Druid, Fighter, Monk, Paladin, Ranger, Rogue, Sorcerer, Warlock, and Wizard.

To learn more about [races](#) or [classes](#)

you're good at or have practiced and improved, and sometimes through sheer dumb luck you successfully complete tasks that are your weaknesses.

in D&D, go to [D&D Beyond](#), the official digital companion for Dungeons & Dragons 5th edition.

Example

Bob the Dwarf is a character with high strength stats, and is more likely to be able to successfully move a heavy boulder. However, Bob the Dwarf has low charisma and is less likely to persuade someone to his point of view.

However, the beauty of Dungeons & Dragons is that your abilities, backstory, and identity don't need to have anything in common with your character. You can be a clumsy and socially awkward person in real life, but your character can be a charming Elf that is as graceful as an Olympic gymnast.

Which brings us to: what does Dungeons & Dragons have to do with Neurodiversity? Go to the next chapter find out or go directly to the [Interactive D&D Module](#)

THE POWER OF PLAY

The Power of Play

Caleb Valoroze-Jones

Role-play is one of the core activities of Dungeons & Dragons and is an effective method to practise and develop skills, especially when players are not held to standards of neurotypical peers. ABA and other less controversial behaviour programs make use of role-play, and role-play has been observed to positively impact autistic youths engaging in live action role-play (LARP).

Explicit Rules & Social Structure

Autistic youths at a LARP camp were observed during two months of ethnographic field research, finding that “the structured social practices of role-playing, from the character design sheets to the genre-specific formality of interactions, constituted a sociocultural ecology affordances of which provided the support and organization participants needed for successful social coordination” (Fein 2015). Interactions outside of gameplay rely on implicit rules and structures that may not be understood or known by autistic people. However, the inherent structures, explicit rules and game mechanics of TTRPGs, like D&D, can create an environment which promotes successful interactions and support positive social interactions with autistic people.

This is in contrast to out of game, unstructured socializing; social interactions are packed with inherent and implicit rules, like rules of etiquette, making eye contact and other arbitrary social rules which can also vary amongst cultures. These rules are rarely explained to us, and learned through social interactions with peers, parents, and authority figures. Our implicit biases against people who deviate from expected social norms and behaviours perpetuates prejudice against neurodiverse folks. Through playing D&D, it's an opportunity for

neurotypical players to examine how to create more inclusive social environments for neurodiverse folks by participating in explicit social rules and structures.

Boundaries & Psychological Safety

In addition to the structure and rules in D&D, there are also community created guidelines to protect player's and groups psychological safety. Some groups play with Line and Veils to explicitly communicate their boundaries. Line refers to a hard line of omission of certain subject matter or triggers that other players cannot cross, whereas a Veil is something that you can allude to, but not describe in detail.

For example, a player's line may be substance abuse as they are triggered or made uncomfortable by substance abuse, so no content or actions with substance abuse would be discussed or included in the game. However, if a player had substance abuse as a Veil, the Dungeons Master and other players could allude to drinking ale at a tavern, but not describe in depth the experience or affects.

Another storytelling technique use is "Fade to Black". Like how films set-up an action and then fade to black to after it's completed, so players can use their own imagination to fill in the gaps if they wish, and players with who prefer to Veil certain subject matter can know an action happened without being uncomfortable by an overt description.

These strategies are built into the game, but instead designed by the TTRPG community to create more inclusive games. This gives players opportunities to better understand others' personal boundaries, and perhaps their own, so groups can play and foster group psychological safety and shared intentionality.

Disability & Inclusivity

The efforts to improve the gaming experience doesn't just end with boundaries. As mentioned, D&D is a hobby that relates to and complements many other hobbies. D&D enthusiasts with skills and interests in Maker Culture (3D printing, physical prototyping)

become interested in dice making and prototyping tactile gameplay tools to make D&D accessible to blind and partially sighted players (like creating braille and tactile dice, screen reader friendly character sheets etc.).

D&D and role-play inherently deals with identity and self-exploration. The official rules and adventures replicate power structures in our society, and the rich history and lore within Dungeons & Dragons including wars, racial tensions, and slavery, further replicate oppression and power structures of our world (Garcia, 2017, p. 240).

Just as our world is socially constructed, players can socially construct or deconstruct these power dynamics through their gameplay, creating their own cultural systems, especially through

Homebrew content is custom, unofficial content created by players.

Homebrew content. Some players created mechanics for various disabilities to reflect the challenges and unique abilities that their disabilities may present. These crowdsourced game mechanics are co-created based on lived experience, which can allow players that experience oppression for their neurodiversity or disability to explore these oppressive power dynamics and systems, and practise self-advocacy skills.

Exploring disability and identity also allows for deeper exploration into power structures by constructing unique, customized content, as opposed to imitating in-game or real world structures. Dungeons & Dragons game is a cultural artifact, and the players, characters, and collective story and world building of neurodiverse and autistic players are also artifacts of co-created autistic and Neurodiversity culture.

Let's Play

Now that you've boosted your knowledge stats about Dungeons & Dragons, autism and neurodiversity, and Role-playing, it's time to play! I would absolutely love to play D&D with every person that reads this and participates in this exhibit, but time and COVID-19 keeps us apart.

Please participate in the interactive role-play game created on Twine. It is designed to mimic and expose you to the feeling of D&D and role-play

[Interactive D&D Module](#)

THEME 5: DESIGN PRACTICE AND PROCESS

Projects to explore around design practices and process

- [Improving Inclusion in Digital Design by Isabel Casanova Ledesma](#)
- [Inclusion and Access: Graphic Design for the 21st Century by Jennie Grimard](#)
- [Designing Inclusive Digital Experiences for Neurodiversity by Sara Boback](#)
- [Equity in OER Publishing by Josie Gray](#)
- [The Black Aesthetic – Diversity Through Data by Jason Burke](#)

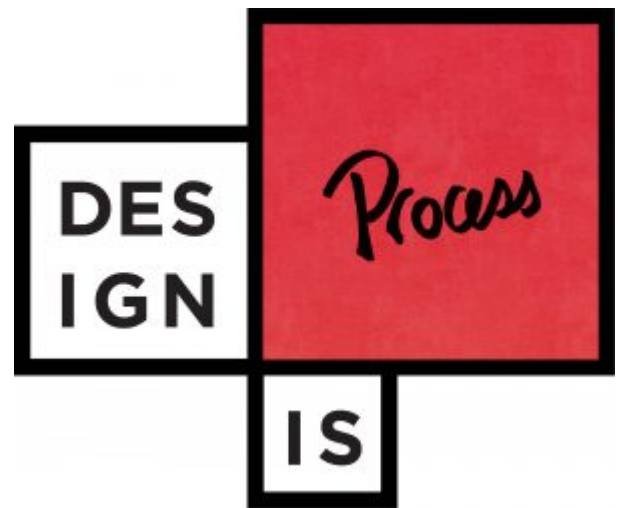
IMPROVING INCLUSION IN DIGITAL DESIGN BY ISABEL CASANOVA LEDESMA

Hello and welcome! Thanks for dropping by and coming to this exhibit where I will be exploring with you how can we improve inclusion in society by changing specific behaviours and tools used by digital designers.

The exhibit is split in three distinct parts:

- [An introduction to design and the design process,](#)
- [What can we all do to improve inclusion,](#)
- [And what specifically can digital designers do.](#)

Please check out the rest of the exhibit at your own pleasure and I hope you find it as interesting as I do. **Want do discuss this topic further with me?** Please get in touch directly on [twitter \(@isabl\)](#) or writing a nice email at [isabel.casanova\[at\]student.ocadu.ca](mailto:isabel.casanova@student.ocadu.ca)



[Enter the first part of the exhibit “Improving Inclusion in Digital Design”](#)





Isabel Casanova Ledesma is a product design strategist based on Toronto with 15+ years of experience in industries like retail, finance, travel and media. She is passionate about the connection between digital and physical services, and the users that come with them.

She has wore many different hats in the digital design field since then such as interaction designer, service designer and accessibility specialist. She has lived in five different countries on both sides of the Atlantic Ocean and at one time was a pretty decent volleyball player.

Her major research project is directly inspired by her experience as a design consultant, and she is very confident that small changes to digital design processes can bring large improvements in societal inclusion.

AN INTRODUCTION TO DESIGN AND THE DESIGN PROCESS

Isabel Casanova Ledesma

On our day to day we interact with products and services that are the outcome of a design process, or that a designer has been active part of creating. But, **what is design?** And what does a designer do exactly?

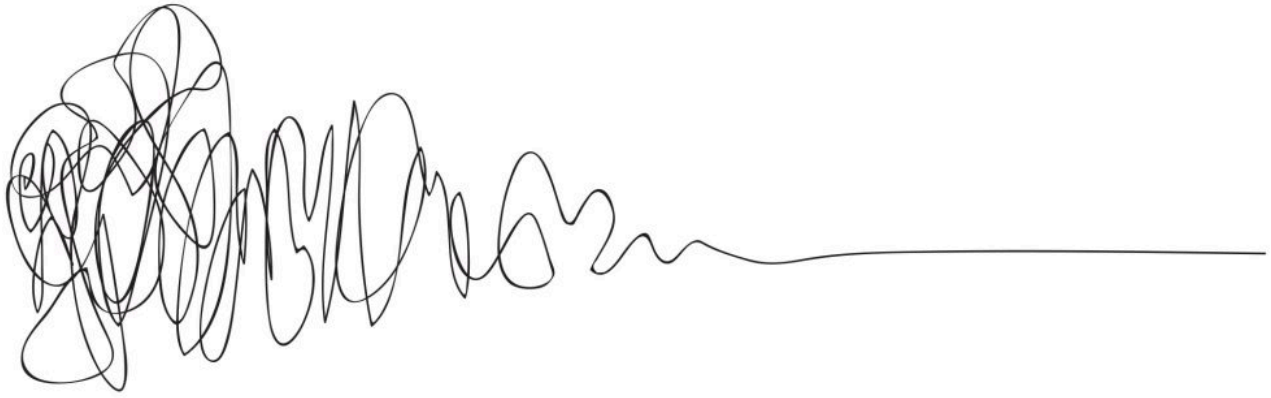
As per the Oxford Dictionary of English, you can find two definition of the word design, both as noun as a verb. For this exhibit we are going to stick with the definition as a verb which is:

to design | dɪˈzʌɪn |

1. decide upon the look and functioning of (a building, garment, or other object), by making a detailed drawing of it: *a number of architectural students were designing a factory.*
2. do or plan (something) with a specific purpose in mind: **[with object and infinitive]** : *the tax changes were designed to stimulate economic growth.*

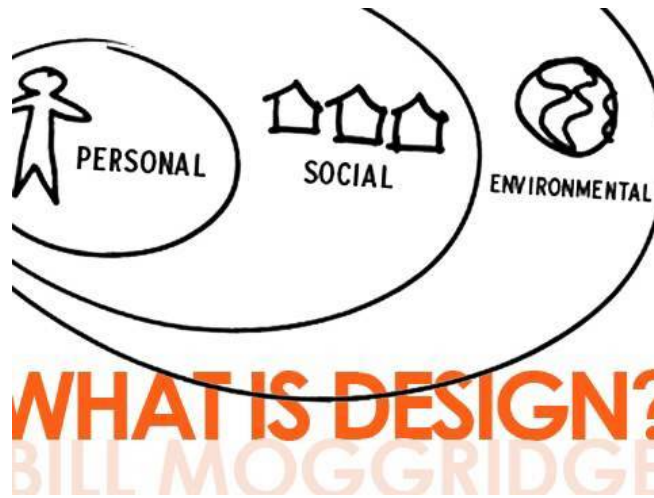
The action of design is clearly one of planning or executing such plan to produce an outcome, whether it is a product, a service or something else depends on largely on the designer and the process they follow, and the noun they focus the activity on. That's why we have different types of design: graphic design, product design, software design, etc. The action is applied to the noun, and yes it is a very broad set of activities, to the point that among designers there is now a very interesting debate whether everybody is a designer.

Now, if you set yourself [to look for a description of a design process](#) you will find what feels like a million of them to choose from, as it seems as designers like to describe our own process as something unique and special, but, most of them if not all follow the same pattern:



The illustration above is known as [the Design Squiggle](#), created by Damien Newman in the early 2000s to help communicate his clients that design was not “*as it was for many, design was the simple act of making ordinary things pretty.*” The Squiggle represents the linear process of first understanding a problem, through activities such as research, to then finding possible plans to solve the problem and then executing in the plan, as per the definition from the Oxford English Dictionary. And it very much feels like a messy and unclear process.

If you have the time to spare, below there is a video of a 50 minute lecture given by the late [Bill Moggridge](#), one of the founders of [IDEO](#), pioneer of [interaction design](#), and, at the time, the director of the [Cooper-Hewitt National Design Museum](#), where he explores further the idea of what is design:



A YouTube element has been excluded from this version of the text. You can view it online here:
<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=560>

Key Takeaways from this Introduction

- **To design** is to plan how a product or a service will look and function.
- **A design process** follows a linear process of exploration of a problem, solutions to this problem and then executing on the adequate solution.

[Proceed to the second part of the exhibit](#)
[“What can we all do to improve inclusion”](#) ➡

References

The Process of Design Squiggle by Damien Newman, thedesigntsquiggle.com

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WHAT CAN WE ALL DO TO IMPROVE INCLUSION

Isabel Casanova Ledesma

Since the 19th century, the [civil rights movement](#) has been pushing humanity towards an inclusive society, one that doesn't discriminate either actively or passively, and values all its members equally. There has been many victories that have helped the advancement of inclusion, such as the [Canadian Human Rights Act \(1977\)](#) and the [Canadian Charter of Rights and Freedoms](#) (1982).

As of 2019, Canada enacted the [Accessible Canada Act](#), also known as an *Act to ensure a barriers-free Canada*. This act aims to ensure no one is discriminated because of their disabilities. It provides a solid legal framework so we can keep each other accountable to ensure that inequality is addressed, and more importantly we fix society so we can offer equal access to both tools and opportunities for everyone.

But, is that enough? It is not, as our culture, our behaviours are filled with built in exclusionary biases, that are even part of our language. To explore this, let's see how well can you spot potentially exclusionary language. Below there is a few of paragraphs of text. Can you spot all the words and expressions that are not inclusive? Do so by clicking on them and pressing the button labelled "Check" when you are done.

WARNING: The text below is shown as an example of non-inclusive language. It is part of the exhibit to showcase how words that are part of our everyday vocabulary can reinforce non-inclusive biases.



An interactive or media element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=694>

Check below to see alternative words that are inclusive:



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=694>

Words are just a very small example of the biases that exists in our society. Some of the paragraphs above validate non-inclusive ideas that validate those negative and discriminatory biases and only help prevent inclusion. As an example of this kind of built in bias: the same word can be perceived in Spanish as powerful if it uses the masculine gender, while in German the same word is seen as weaker when used with the feminine gender (*Konishi, 1993*). We do have to start somewhere, and words are a good starting point to change. If you want to explore the field of inclusive words and language, the [Conscious Style Guide](#) and the [National Center on Disability and Journalism's Style Guide](#) are great starting places.

Key Takeaways from *What can we all do to improve inclusion*

- **Inclusion is a human right** and we have to play an active role to ensure everyone is part of society no matter their age, gender, race, beliefs, sexual orientation or abilities.
- **Non-inclusive biases are all around us** as part of our behaviours, in our language, and we have to commit to eradicate them from our society no matter how uncomfortable that makes us.

Proceed to the third and last part of the exhibit “What can digital designers do” 

References

Konishi, T. (1993). The semantics of grammatical gender: A cross-cultural study. *Journal of psycholinguistic research*, 22(5), 519-534.

National Center on Disability and Journalism (2018). [Disability Language Style Guide](#)

Quiet Press (2020). [Conscious Style Guide](#)

WHAT CAN DIGITAL DESIGNERS DO

Isabel Casanova Ledesma

Inclusion is, as of today, a proactive effort that we all have a responsibility to pursue. In the world of design, Inclusive Design was first introduced back in 1994 by Roger Coleman at the Royal College of Arts, recognizing the efforts and gains made by the civil rights movement and how design plays an important part in achieving an inclusive society (*Coleman, 1994*). Since then, Coleman and others have been making the case of why inclusion is an obligation for designers but as well how it is actually good for business (*Goodman, et al. 2006, Dong, et al 2015*).

Unfortunately most designers believe that even though inclusive design is, overall, beneficial for society it is difficult to implement, costly and most importantly, their clients are not interested in it . And this attitude has remained more or less the same since 1994 (*Waller, et al. 2015*).

Digital designers use words and images to explore the problems through a design process. Like all of us they have the same biases and habits that make them oblivious to who do they exclude. What if instead of trying to convince designers to adopt inclusive design as a methodology we gave them simple tools and techniques that created change? What if we build into their process simple tools that

An important aspect of a design process is [usability testing](#). This is when a group of users is observed as they attempt to use a product or a service, while thinking out loud. This helps whoever owns the product or service to better understand how intuitive the product or service is, and how adaptable is to meeting user needs. An important aspect of this kind of test is recruitment of individuals.

Right now there is no regulatory or policy requirement that asks of people who conduct this

kind of tests to include people with disabilities in their tests. At the same time, there is little that prevents them from doing so.

And, like all of us, language is plagued with built in reinforcements of non inclusive biases. Here is a real example from a design document.

WARNING: The text below is shown as an example of non-inclusive language. It is part of the exhibit to showcase how words that are part of our everyday vocabulary can reinforce non-inclusive biases.

See if you can spot words or expressions that are non-inclusive:



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=709>

Check below to see alternative words that are inclusive:



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In the coming months I'll be working with digital designers to understand their design process, their tools and see what kind of small changes can be done to marginally improve them by removing or mitigating existing biases that prevent inclusion. If you have any ideas or suggestions on how to do this, please don't hesitate and get in touch directly on twitter (@isabl) or writing a nice email at [isabel.casanova\[at\]student.ocadu.ca](mailto:isabel.casanova@student.ocadu.ca).

Thanks for stopping by!

Key Takeaways from *What can digital designers do*

- **Inclusive Design** has been around for a while, but uptake has been slow and the biases against it remain more or less the same since 1994 among designers
- **Understanding inclusion in design** is about recognizing everyone's uniqueness, adopting processes & tools and looking at the broader beneficial impact design can have.
- **Focus on the tools, instead of the designers.** Instead of focusing on the designers themselves, by focusing on how they use words and images to communicate their ideas they can change their own habits and improve inclusion

[Go back to the Inclusive Spectrum's main exhibit](#) ➞

References

Coleman, R. (1994, August). The Case for inclusive design-an overview. In Proceedings of the 12th Triennial Congress, International Ergonomics Association and the Human Factors Association, Canada.

Dong, H., McGinley, C., Nickpour, F., Cifter, A. S., & Inclusive Design Research Group.

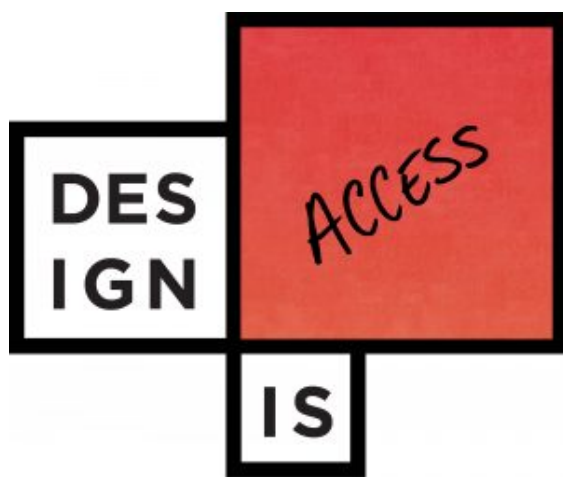
(2015). Designing for designers: Insights into the knowledge users of inclusive design. *Applied ergonomics*, 46, 284-291.

Goodman, J., Dong, H., Langdon, P., & Clarkson, P. J. (2006). Increasing the uptake of inclusive design in industry. *Gerontechnology*, 5(3), 140-149.

Waller, S., Bradley, M., Hosking, I., & Clarkson, P. J. (2015). Making the case for inclusive design. *Applied ergonomics*, 46, 297-303.

INCLUSION AND ACCESS: GRAPHIC DESIGN SKILLS FOR THE 21ST CENTURY BY JENNIE GRIMARD

A little bit about the project...



Graphic design is such an integral part of our daily lives; we interact with designed artifacts when we work, when we shop, when we travel, when we go to the doctor and the list goes on.

Graphic design is embedded in our culture:

It's everywhere! It's important to consider that all these interactions require more than just a digital or printed visual to communicate with a diverse audience.

As a design educator, I wanted my research to explore how we are preparing our next generation of designers to be more inclusive. My major research project is looking at how we can evolve our current design curriculums to embed accessibility in our technical practices and develop graphic designers equipped with 'accessibility mindfulness'.

This exhibit is focused on exploring the past, present and possible future of Graphic Design with regards to inclusion and accessibility. The next few chapters will explore:

- The role that graphic design plays in culture and its history

- The AODA and what it means for graphic designers
- Broadening the scope of graphic design beyond visuals

Interested in sharing your experiences? I would be happy to connect and discuss further. Please feel free to connect with me via [LinkedIn](#) or at jennie.grimard@student.ocadu.ca

Jennie Grimard

Jennie is a freelance graphic designer and the program lead for the Graphic Design for Print & Web certificate in the Faculty of Media and Creative Arts at Humber College in Toronto. Over the last decade, she has taught design to a range of students at Humber College—from first years to professionals looking to upgrade their skills.



As an educator, accessibility in the classroom has always been a priority and she has worked on several initiatives at Humber to create resources for students, faculty and the digital design community. One of these

projects includes [Making Accessible Media](#) – an open source, accessible resource to learn the fundamentals of accessibility for multi-media projects.

GRAPHIC DESIGN: A RETROSPECTIVE

Jennie Grimard

Historical Knowledge

In order to envision the future of graphic design, we need to learn from the past. From the invention of the printing press in the first industrial revolution to the introduction of the personal computer and the availability digital design software in the 80's; graphic designers have proven to be adaptable and flexible in the face of change.

Today, in the midst of the fourth industrial revolution, graphic designers are being challenged once again to redefine their roles. Rapid advancement in design tools, multi-media communication channels and artificial intelligence are shifting the role of the designer away from simply creators to curators, defining the logic of content in addition to its aesthetic (Designmodo, 2018). The skill set required for a modern graphic designer is broadening beyond 'making things' to a more strategic and innovative role rooted in communication. The timeline below explores how technology, cultural shifts affect how information was shared throughout history.



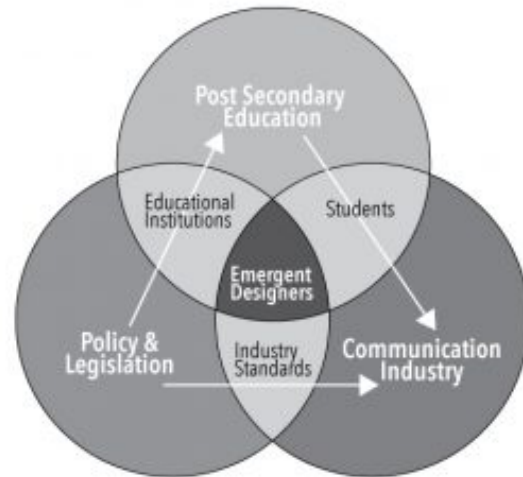
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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=35>

Impact on Education

Although our education models continue to mirror the scaffolded structure of the Bauhaus curriculum from the 1930's, design education has evolved to meet the needs of industry, particularly in the digital revolution.

In Canada, the 21st century will have legislation push designers into an era of inclusion, shifting workflows and deliverables to support increased accessibility and to design multi-sensory modes of communication. Design education plays a vital role in supporting the needs of society, and the industry by developing an emergent workforce equipped with the necessary skills.



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Historical Review Key Takeaways

- Socio-cultural and technological factors play an important role in how we practice graphic design.
- Design in the 21st century will emphasize accessibility through inclusive processes paired with technical skills.
- Technology and policy will push graphic designers to be strategic and

think beyond digital and printed visual communications.

BEYOND AODA COMPLIANCE

Jennie Grimard

Accessible Graphic Design

In the province of Ontario, legislation has created urgency for graphic designers to be inclusive in their processes by requiring them to produce accessible communications. The AODA (Accessibility for Ontarians with Disabilities Act, 2005) has a goal for the province to be ‘accessible by the year 2025’(Ontario.ca, 2020).

The information and communication standard of the AODA addresses the way information is created and communicated. This standard directly impacts the workflow and design deliverables for every working designer in the province.

The compliance requirements of the AODA for graphic designers are primarily focused on the following:

- Alternative formats to visual information (image description and alt-text)
- Digital alternatives to printed materials for access with assistive devices
- Maintain a 4.5:1 colour contrast ratio to adequately distinguish elements on the page (digital & print)
- Logical information architecture with tagged semantic roles on web pages and PDF's

The most recent review of the AODA strongly encourages the government to work with post-secondary institutions to build accessibility into professional and technical programs of study in order to produce a workforce that is well versed in the skills to produce accessible communications (Onley, D., 2019).

Accessible Document Checklists

If you are creating communications that you are sharing with the public, ensure that you are meeting the minimum requirements for AODA compliance. These checklists will help you keep accessibility top of mind as you are creating.

[Inclusive Spectrums Downloadable](#)

Limitations of the AODA

In the context of graphic design, the guidelines of the AODA present an accessibility baseline to ensure that blind and low vision communities are not faced with barriers in accessing information. While providing an image description to translate visual information is certainly beneficial in providing supplemental information to a participant who is using a screen reader, there are some limitations.

In an increasing digital world, our interaction points are entirely visual. Consider smart phone interfaces, websites, maps, etc... These representations are often very symbolic and abstractions of physical experiences. Providing adequate and relevant alternative text that will be meaningful to a participant poses a challenge. Currently the AODA requires image description for all visual elements however it does not prescribe the parameters as it's highly contextual. If we move beyond basic compliance, graphic designers can begin to explore layering multi sensory communication methods to create more robust communications.

Iconic Representations of Brands

A logo is the visual representation of an entire organization, it's culture and it's values.

Through its iconicity, colour palette, type choices and composition, the landmark will evoke a sense of an organization's identity. How can this visual representation information be translated into text, which is a sentential representation? What information is essential? What can be omitted?



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Multi Sensory Design

Translating abstracted visual information into words omits many of the nuances and subtleties of the design. As we move forward in the 4th digital revolution, graphic designers will need to start expanding their toolkits to leverage the various modes of communication and diverse audiences to include audio experiences, tactile experiences, environmental experiences and virtual experiences.

One example of this design revolution is the growing prevalence of audio or sonic branding. Armed with research from neuro-scientists and seasoned marketers, reinforcing a brand's identity through multi-sensory experiences communicates a more robust message, that lingers in the participants mind. Can sonic brands create brand recognition for the blind and low-vision community rather than inadequate image descriptions?

The digital design industry is evolving to include diverse teams, with expertise in various production skills. Communication designers (a.k.a graphic designers), will need to be the architects of the identity experience, ensuring visual, auditory, and language based consistency across all the different communication platforms.



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Accessible Design Key Takeaways

- Graphic designers are getting familiar with accessibility concepts due to the AODA.
- The AODA is a baseline for accessibility but leaves much room for innovation.
- Multi-sensory design approaches will be the future of inclusive design.

MOVING FORWARD

Jennie Grimard

Research Project Next Steps

In September 2020, I plan to assemble a team of design educators in Ontario to leverage their expertise and explore how we can infuse accessibility and inclusion in our classroom activities and assessments.

Through a series of surveys and interviews, I aim to establish a faculty guide with example teaching activities to make inclusive design a core skill for emerging designers. I'm also planning a co-design workshop with graphic design students at Humber College in 2021 to evaluate and iterate on the learning activities.

The goal of the research is to develop consistent, effective teaching activities and robust assessments throughout the graphic design curriculums in Ontario. Fostering a more inclusive approach to solving design problems through both technical skills, inclusive ideation processes and multi-sensory outputs.

Thank you for taking the time to review my exhibit and get familiar with my research project.

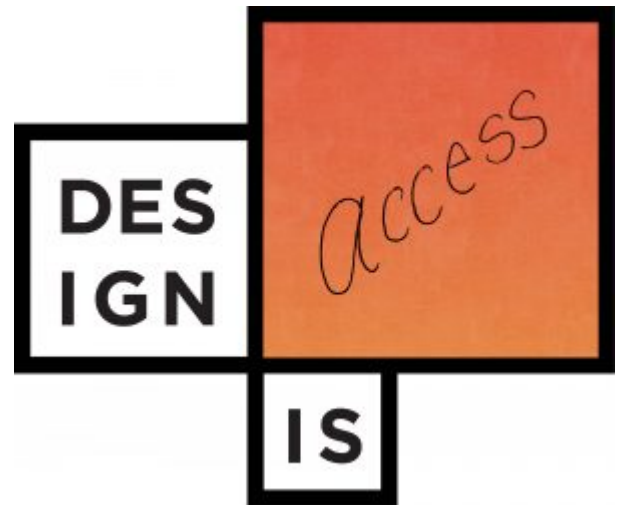
If you have any feedback or would like to get involved with the project, please don't hesitate to contact me at jennie.grimard@student.ocadu.ca or connect with me on LinkedIn.

DESIGNING INCLUSIVE DIGITAL EXPERIENCES FOR NEURODIVERSITY BY SARA BOBACK

Hi & thanks for joining! I will be exploring how websites, web-applications and documents can be designed and built to enable individuals with autism, ADHD and or dyslexia to have improved access to information online.

The exhibit will follow this format:

- An introduction to the accessible web
- What it currently means to create “accessible” content, and whose voices are missing
- My research plans for this fall
- A digital accessibility scavenger hunt based on current web accessibility guidelines



Once you have a chance to check out my exhibit, I would love to hear your thoughts, feedback, ideas, and more.

Want to discuss accessibility with me? You can connect with me a few different ways:

[Twitter \(@KristinaBoback\)](#)

Email sara.boback@student.ocadu.ca

WHAT IS WEB ACCESSIBILITY AND WHO IS MISSING?

Sara Boback

Hi again! Let's jump right in...

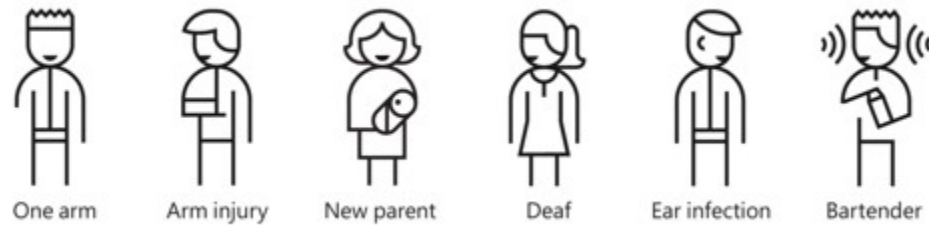
What is Web Accessibility?

Personally, I like this definition. Web accessibility means creating web products and web services that are designed for users of all abilities.

So, who are we designing for?

The list is endless, when we think about our designs and who we should be including. We should be considering a wide range of persons and perspectives when conducting our research, designing and testing with the aim to ensure everyone has access to information. To start some considerations could be with:

- Persons who are visually impaired or blind
- Persons who are hard-of-hearing or Deaf
- The elderly
- Non-native English speakers
- Temporary or situational disabilities
- Users who have cognitive and learning disabilities
- Persons with mobility impairments



An example of a persona spectrum from Microsoft Design's Inclusive Design toolkit

The Gap

In reality, in the design of websites and applications, many different perspectives are missing. The gap, I'm focusing on for my research project, however, are those with developmental or learning disabilities. Unfortunately, this gap persists as persons with disabilities are rarely included in research or planning work in designing websites, and additionally in my experience designers and developers are unaware of best practices and needs that persons with disabilities may have. Currently, there is little emphasis or focus is placed on designing websites to be usable for neurodiverse individuals and my research focus will be on how websites, web-applications and documents can be designed and built to enable individuals with autism, ADHD or dyslexia to have improved access to information.

What do we know now?

There has been research done that generally is accepted as web accessibility best practices to improve access broadly. I'll outline some considerations below;

Choosing Accessible Colours

It's important that the text colours we choose, have sufficient contrast against the background. This also applies to links!



High Contrast

High contrast and low contrast text.



Low Contrast

Can you imagine trying to read the low contrast text? Its painful!

Simple Organization

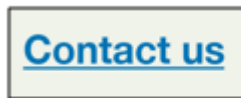
Having a logical and linear layout is shown to help generally with information consumption. Additionally, breaking up content with bullets, headings and sub-headings improves structure of the page, and can aid those navigating with assistive technology in navigating more effectively.



Two layouts – the left layout is more streamlined, whereas the right has content more broken up

Descriptive Hyperlinks

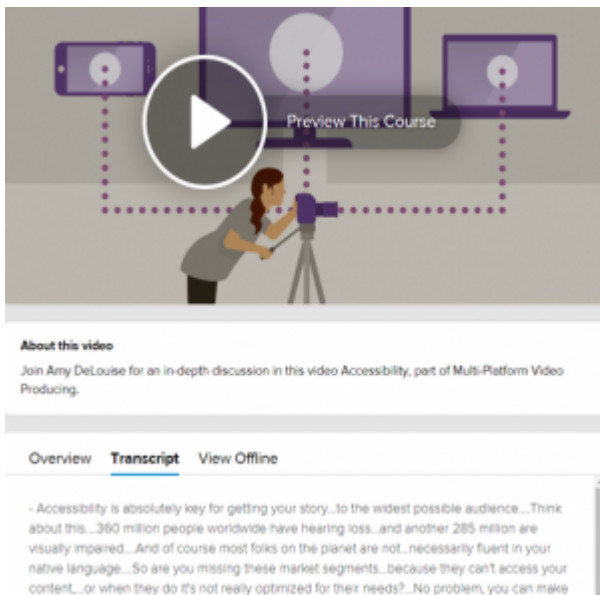
Creating descriptive hyperlinks can help with understanding context and the resources being linked to.



Imagine selecting the “click here” hyperlink. How would you ever know where it would take you?

Videos

The use of captions and audio descriptions for videos greatly improves to access. Additionally, providing a descriptive text transcript assists with providing an alternate means of content access.



The video shown includes a transcript as an alternative!

Helpful Forms

Forms can be one of the trickiest things, but everything goes back to clear and simple information design.

- Mandatory form controls should be clearly identified as required
- Provide clear instructions to prevent errors

- Error messages provide clear suggestions to fix errors

Required fields are indicated with a "*".

This form indicates required fields, which is helpful.

First Name*:

Last Name*:

Favorite food*:

Great – thanks for stopping by and checking out some of this information. Pop on over to my next page to learn more about my research efforts this year!

Sources:

[Microsoft's Inclusive Design Toolkit – Persona](#)

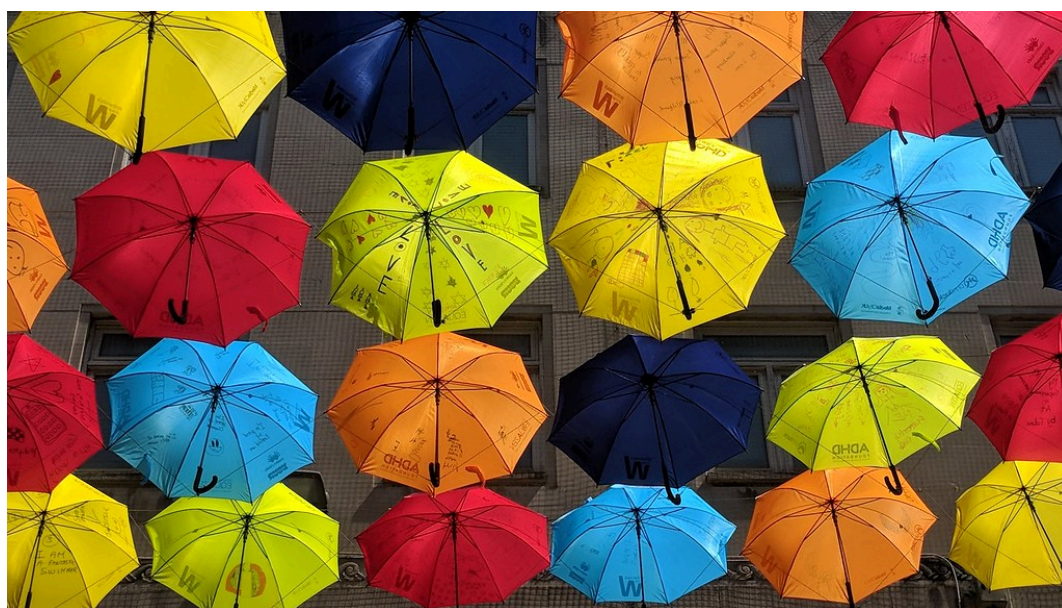
RESEARCH PLANS

Thanks for continuing on.

I'd like to share some information about my approach and plan for research this fall.

Web accessibility and Neurodiversity are not widely explored ideas in my experience, and with my research I'm hoping to bring more awareness to the needs of neurodiverse users on the web, and to encourage co-design and broader outreach in user research. I'd like to focus on the needs of three user groups; those who have attention deficit hyperactivity disorder, autism spectrum disorder, or dyslexia. I've chosen to narrow my scope to these three groups and treat each separately within my research.

In the fall, I'm hoping to do some co-design with individuals that identify with having these types of disabilities to learn more about their technology preferences, their needs on the web, and what they're looking for!



This image is
from the ADHD
Umbrella
Project 2018

At the end of the day, differences and needs should be celebrated, and I'm excited to learn

more about web preferences. Something I anticipate is that the needs will be vastly different person to person, given that everyone is unique.

Great – thanks for stopping by and learning more about my upcoming research plans. Pop on over to my next page to learn more about current web accessibility guidelines and [start a web scavenger hunt](#).

Sources:

[Image source: ADHD Umbrella Project 2018](#) – by PrintKick Ltd.

WEB ACCESSIBILITY SCAVENGER HUNT

About the Scavenger Hunt

I've created a simple Web Accessibility Scavenger Hunt.

The Scavenger Hunt has been designed to be as simple as possible in order to accommodate the wide range of knowledge of those that are conducting accessibility testing.

Each page is designed to have a specific, obvious accessibility defect that can be linked back to the Web Content Accessibility Guidelines success criteria.

The Tools

The Hunt requires the use of a couple web accessibility testing tools, all of which are free.

The Scavenger Hunt requires the use of a screen reader – if you don't want to download one, you can use a Chrome browser extensions of your choice (aXe or Wave) and a colour contrast analyzer.

Your Toolbox

- [JAWS screen reader desktop application](#)
- [NVDA screen reader, desktop application](#)
- [Colour Contrast Analyzer, desktop application](#)
- [Web Accessibility Toolbar, Internet Explorer Toolbar](#)
- [WAVE extension, Google Chrome extension](#)

- [aXe extension, Google Chrome extension](#)

Good luck with your training!

Start Scavenger Hunt

SCAVENGER HUNT

Let's get started and walk through some potential accessibility issues. Follow the instructions for each issue below and check your knowledge in the accompanying quiz. Each "Issue" relates to a WCAG success criteria. WCAG is generally accepted as the universal standard for web accessibility. You probably don't need to read the specs, but the direct link is there to each criteria within the guidelines, if you choose to do so.

There are four total, let's see how you do!

Issue 1:

1. Review the graphic using screen reader of choice, either JAWS or NVDA. If you can't use a screen reader, try inspecting the image by right-clicking on the image with your mouse -> selecting "Inspect", and looking through the code for a tag called "**alt**"
2. Review your WCAG 2.0 Checklist, [success criteria 1.1.1 Non-Text Content](#).
3. Determine the accessibility issue with the content.

This word-cloud uses a lot of key words about accessibility.



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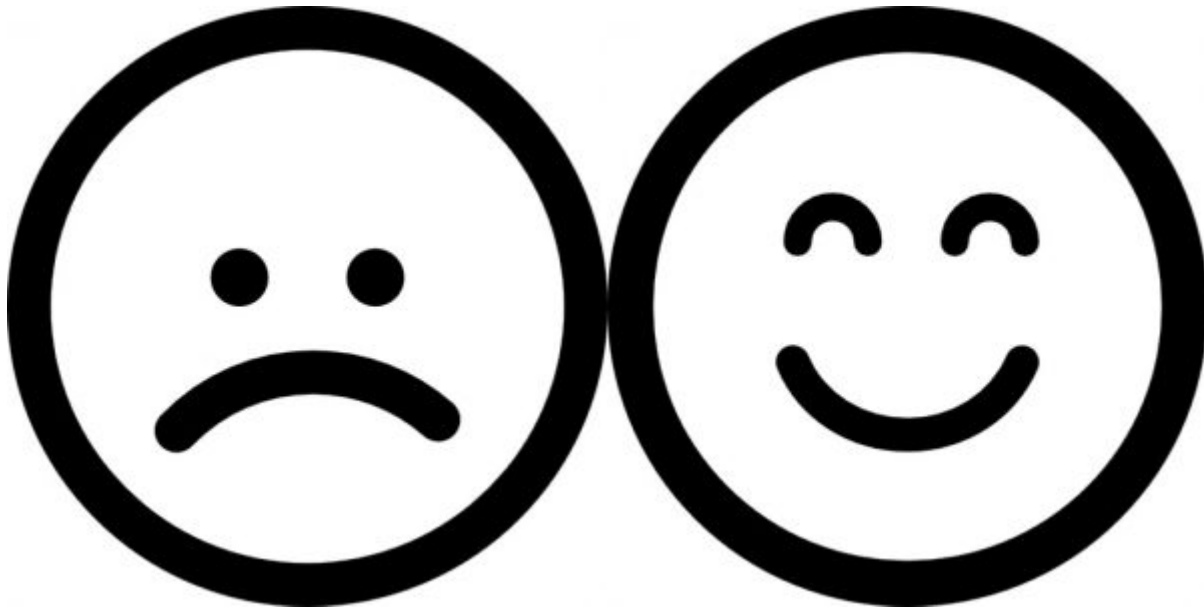
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Issue 2:

1. Review the content using your screen reader of choice, or simply by eyeing the text and image.
2. Review your WCAG 2.0 Checklist, [success criteria 1.3.3 Sensory Characteristics](#).
3. Determine whether there is an accessibility issue below.

If you are happy today, click the happy face.



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Issue 3:

1. Review the content using your own judgement to see whether there are any issues.
2. Review your WCAG 2.0 Checklist, [success criteria 1.4.1 Use of Colour](#).

3. Determine the accessibility issue.

The cells in the table have been organized according to value. The light-blue cells represent the monthly spending total where the total value is less than 5000 but greater than 1000. The salmon cells represent the monthly spending total where the total value is greater than 5000. The light-green cells represent the monthly spending total where the total value is less than 1000.

2017	2018	2019
January	January	January
February	February	February
March	March	March
April	April	April
May	May	May
June	June	June
July	July	July
August	August	August
September	September	September
October	October	October
November	November	November
December	December	December



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=1587>

Issue 4:

1. Review the content on this page using your judgement to determine the issue.

2. Review your WCAG 2.0 Checklist, [success criteria 2.4.4 Link Purpose \(In Context\)](#).
3. Determine the accessibility issues with the links on this page. **Note:** Do not actually click the links.

Web Content Accessibility Guidelines (WCAG) 2.0

[Click me.](#)

WCAG 2.1: What is it, and how does it apply to me?

[Learn about it.](#)

Web Accessibility Demonstration

[Click here!](#)

WAI-ARIA Resources

[Learn more!](#)

Web Experience Toolkit

[It's really useful.](#)



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=1587>

Congratulations on completing the hunt!

And thanks a lot for visiting my exhibit. I hope you learned something, and enjoyed yourself.

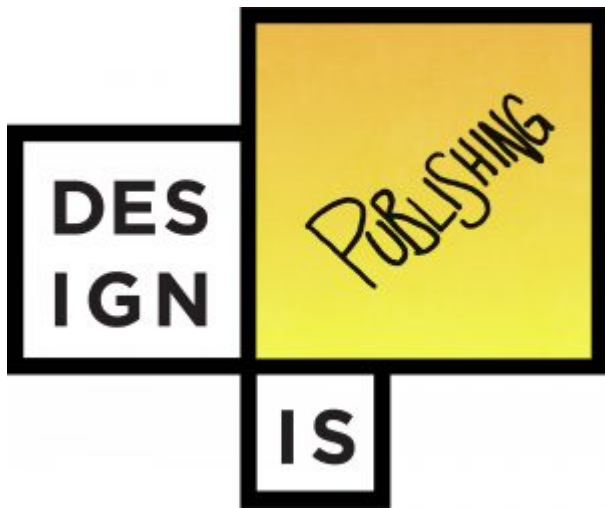
I would love to hear your thoughts, feedback, and ideas, and more. **Want to discuss accessibility with me?** You can connect with me a few different ways:

[Twitter \(@KristinaBoback\)](#)

Email sara.boback@student.ocadu.ca

EQUITY IN OER PUBLISHING

BY JOSIE GRAY



Press play on the following media player to listen to the podcast version of this chapter or read the text below.



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=234>

Topics covered in this section

- [Land acknowledgement](#)
- [About me](#)
- [Introduction to OER](#)
- [Through what lenses can we evaluate the equity of OER?](#)

- [Where to next?](#)
- [Contact information](#)

Welcome to my exhibit! I am glad you're here.

In this section, I will be introducing myself and will provide an introduction to open educational resources and the topics that will be covered in the rest of the exhibit.

Acknowledging the land on which I live, work and study

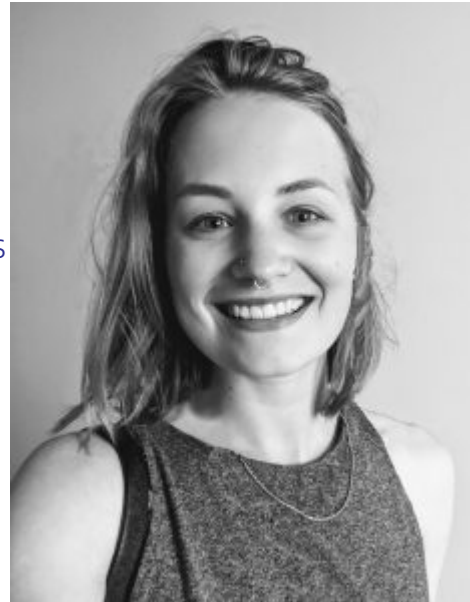
I live uninvited on the traditional territories of the W̱SÁNEĆ People and the Ləkʷəŋən People, now known as the Esquimalt and Songhees First Nations. I moved here in 2013 to complete an undergraduate degree at the University of Victoria, and it is where I continue to do my work with BCcampus and complete my current studies (from a distance) at OCAD University. I grew up on the beautiful (and wet) territories of the Tsimshian People on the north coast, and I have ties to Treaty 6 territory, where much of my extended family lives.

I am very grateful for all of the opportunities I have had to learn and grow on each of these territories. I recognize my responsibilities as a white settler on these lands to work against the harms settler-colonialism continues to perpetuate to this day, and listen to and learn from those who have protected and cared for these lands since time immemorial.

Unless you are on the southern tip of Vancouver Island, you are not on the same territories as me. Do you live on Indigenous land? If so, do you know whose land

you live on? If not, here is an easy place to start that learning journey: [Native-Land.ca](https://NativeLand.ca)

Josie is an accessible open publishing advocate who is trying to figure out what it means to be an inclusive designer. She is interested in the balance between print and digital design from an accessibility perspective, feminist approaches to publishing, and what lies beyond providing “access” to information. She currently works for BCcampus in Victoria, B.C., where she manages their [B.C. Open Textbook Collection](https://bcampus.ca/bccampus-open-textbook-collection/) and provides training and support for B.C. faculty publishing open textbooks. Josie has been learning and teaching accessibility in the context of OER since 2016.



Introduction to OER



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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=234>

Open educational resources (OER) are any kind of resource used for teaching and learning—i.e., textbooks, syllabuses, videos, test banks—that are in the public domain or under an open licence (such as a [Creative Commons Licence](https://creativecommons.org/licenses/by/4.0/)), which allows others to retain,

reuse, revise, remix, and redistribute the content—all without needing to ask for permission from the original author.

Post-secondary education is expensive, and the cost is a huge barrier to a lot of students. A student often must spend hundreds of dollars on textbooks every semester, and students who cannot afford that cost go without those learning materials. But when an instructor uses an open educational resource, there is no cost to students. And because OER are posted online, people who are not in the class can also access the resource, and students can keep their copy as long as they want.

Since 2012, students in British Columbia have saved over \$19 million through the use of open textbooks. In Ontario, students have saved over \$10 million since 2017. (Stats as of July 2020).

In open education, the goal is to increase access to education by changing the way we think about knowledge. Instead of bundling up knowledge in an expensive textbook or putting it behind a paywall, open education sees knowledge as a public good that should be freely available to everyone to learn from, build on, and customize for their own purposes.

“This... open education movement combines the established tradition of sharing good ideas with fellow educators and the collaborative, interactive culture of the Internet. It is built on the belief that everyone should have the freedom to use, customize, improve and redistribute educational resources without constraint. Educators, learners and others who share this belief are gathering together as part of a worldwide effort to make education both more accessible and more effective.”

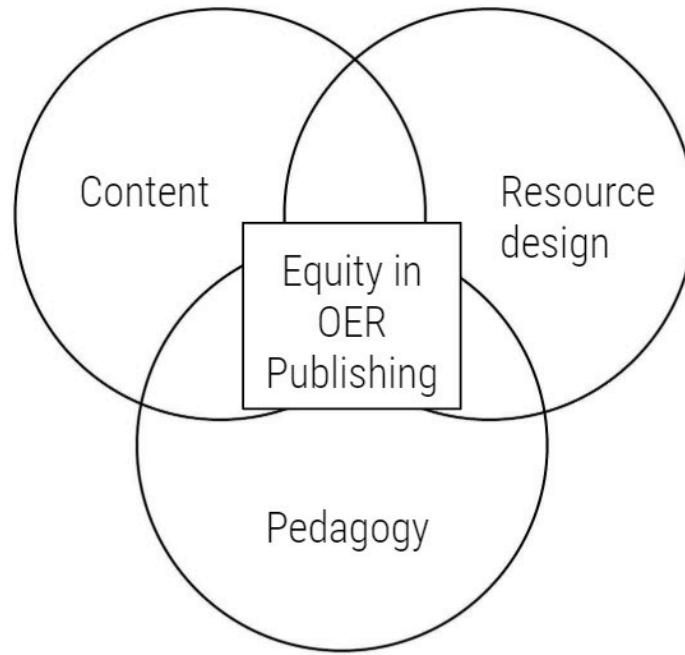
— [The Cape Town Open Education Declaration \(2007\)](#)

Through what lenses can we evaluate the equity of OER?

One question to ask is if OER are by definition equitable and good. The short answer is no, they are not. If there is not a clear plan to write, design, and publish an OER so it is equitable, it will not be. If we stop focusing on how OER are free, it becomes clear how easy it is for OER to reproduce existing inequities that are common in commercial publishing.

There are three aspects that need to be considered when creating an open educational resource, or OER:

- You can look at the **design** of the resource. This includes what the resource looks like, how it is navigated, and its level of accessibility and flexibility.
- You can look at the **content** of the resource. What is being taught? Whose knowledge is being centred? Are diverse people, perspectives, and experiences visible? And if so, how are they portrayed?
- You can also look at the **pedagogy** of the resource, meaning how is the resource designed to support learning and what methods does it use to do that.



These three things are not separate concerns. They are very much overlapping and interconnected, and I am interested in where these three things overlap from an equity perspective, and looking critically at the tools, processes, and practices that influence the design, content, and pedagogy in OER.

Where to next?

I would like to talk about each of these topics in more detail. But, it's very possible that you are not interested in each of these topics. So, over the next three chapters, I will be taking about:

- [OER Design](#)
- [OER Content](#)
- [OER and Pedagogy](#)

And you are welcome to navigate to whichever topic sounds the most interesting to you. If

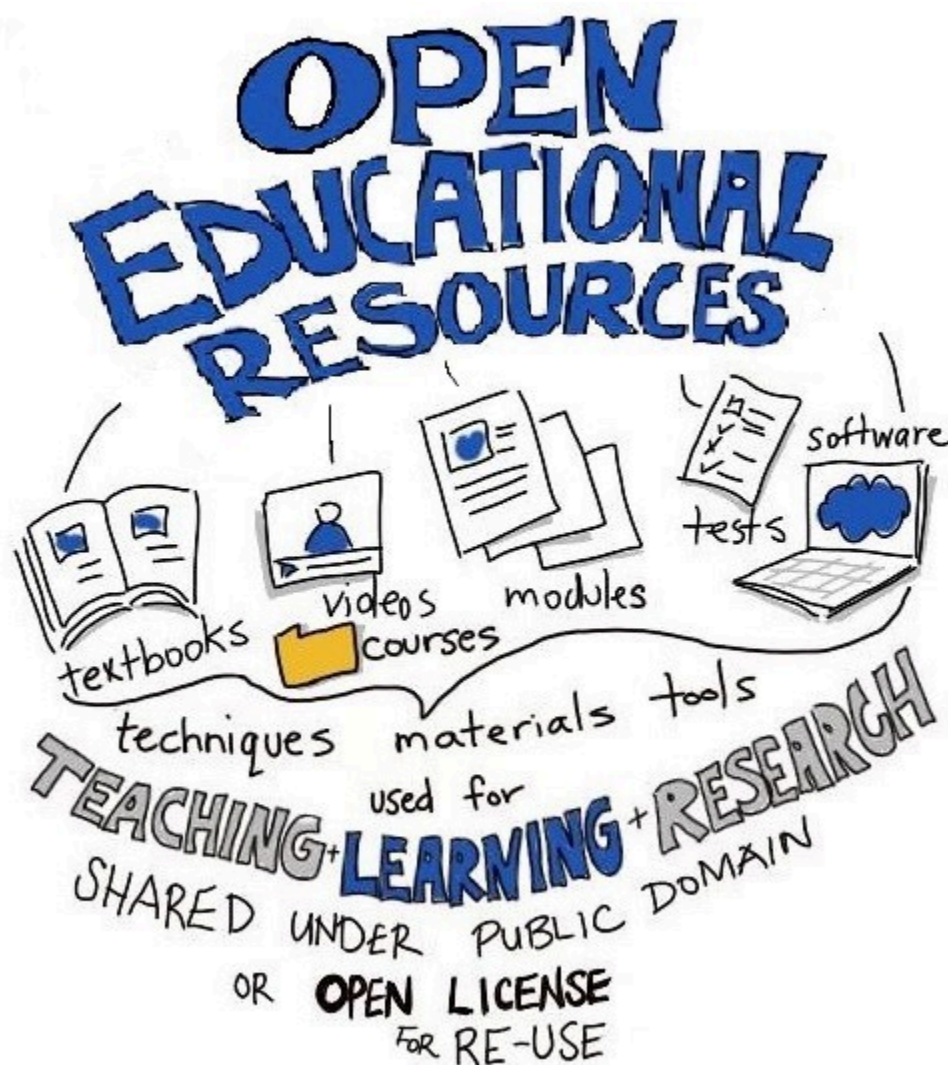
you are only interested in resource design, you can only explore that section. But if you'd like to explore them all, you are more than welcome to.

When you're finished exploring the three sections in as much or as little detail as works for you, I'd invite you to go to the last chapter where I sum everything up and talk a little bit more specifically about where I see my project going over the next year: [What's Next?](#)

Contact information

Once you have a chance to explore, I would love to hear your thoughts, feedback, and ideas, and more. You can connect with me a few different ways:

- [Twitter \(@josiea_g\)](#)
- Email (josie.gray[at]student.ocadu.ca)



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OER DESIGN

Josie Gray

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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=28>

Topics covered in this section

- [Accessible but not accessible](#)
- [Social model of disability and spectrums of access](#)
- [How can we make it easier to create accessible OER?](#)

In this section, I will be talking about accessible and inclusive design in the context of OER. I will talk about the social model of disability, a need to balance print and digital design considerations as OER become increasingly multimodal, and how OER publishing tools can help make accessible authoring easier. I hope you enjoy.

Resource design is the area that I have the most experience in and have been thinking about the longest.

Accessible but not *accessible*

People who advocate for OER often talk about “access.” They argue that OER improve access to education because they are available for free online, or they say a resource is “freely accessible online.” But this word accessible is also used to signify that something is accessible for disabled people. And unfortunately, many OER that exist today are inaccessible.

Digital formats have the potential to really increase the accessibility of educational materials. They are more flexible, and people can use assistive technologies interact with the content in different ways. For example, text can be enlarged on the screen or text-to-speech technology can read the content aloud. This allows people to access the content in a way that works best for them.

Although you can often print an OER, they are designed as digital resources. Print resources are static and cost money to print. If you can't pay for the print copy or see the printed page, a print version would be completely inaccessible.

But accessible digital content does not happen on its own. It requires an intentional approach. There are guidelines. The W3C maintains the Web Content Accessibility Guidelines (WCAG), which provides instructions on how to design and structure web content so it is accessible to people with a range of disabilities.

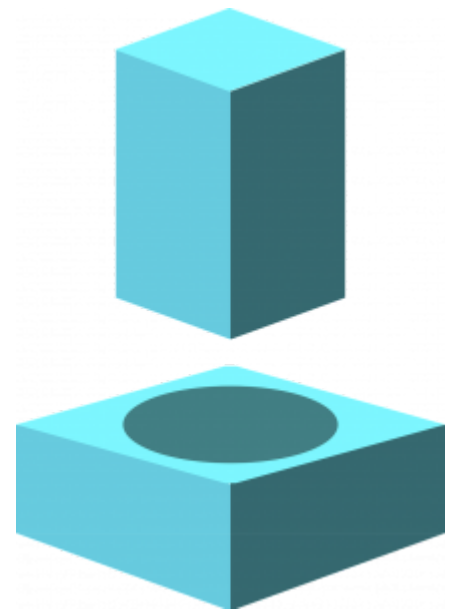
But it is also not as simple as following a set of guidelines.

Social model of disability and spectrums of access

An idea I would like to introduce here is the social model of disability. I first encountered this idea when listening to Jess Mitchell present about inclusive design, but it is an idea that has a long history in the disability rights movement.

The social model of disability offers an alternative to the medical model of disability that currently dominates our society. The medical model sees disability as grounded in the individual, a personal deficit that needs a cure or accommodation. We see this model in universities, where students need to provide documentation of a diagnosed disability to be eligible for accommodation.

In contrast, the social model looks at external factors that create barriers. It sees disability as emerging when there is a mismatch between a person, their environment, and the tools they have access to. This model looks at how accessible and inclusive design can reduce or eliminate unnecessary barriers and, in doing so, make things better for everyone.



Disability as mismatch

The classic example is the curb cut. A curb cut is where the sidewalk slopes down to meet the road at intersections. So rather than having to step off the curb at an intersection to cross the street, people can go down a mild slope. This design has the largest benefit for people using wheelchairs or motorized scooters, but it benefits so many more people who may or may not have a disability, including parents with strollers or someone on a skateboard.



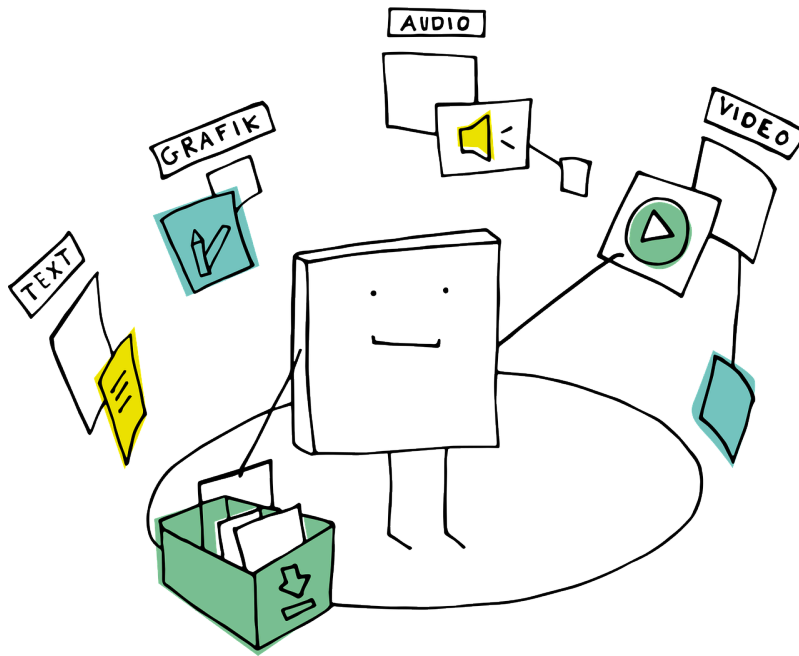
Accessible design is good design

The social model of disability encourages us to understand disability as more of a spectrum that can affect different people in different times and in different ways. To give an example from education, when an instructor is lecturing, a Blind student will need the instructor to verbally describe images used on the slides. But this verbal description also benefits someone who has a migraine and needs to keep their eyes closed or someone who is busy taking notes. It may also help all students better understand the images on the slides.

So to go back to the design of OER, it is important to think about how these resources can be designed not just to meet accessibility guidelines but for spectrums of access that recognize the diverse abilities, technologies, contexts, and learning preferences of students.



In some ways, OER makes this easy. For example the OER publishing tool I use at work is called Pressbooks (the same tool you're accessing this exhibit on). Pressbooks will export a resource into multiple formats that students can choose from. If they want to read it online, there is a website version. But they can also download formats to read offline on their computer, phone, or print out. The challenge arises when trying to ensure that all formats provide an equivalent learning experience. For example, OER have more support for multimedia like videos, audio, and interactive activities. But these things are not included in the offline versions, which creates a barrier for a student that does not have reliable internet access.



How can we make it easier to create accessible OER?

Another thing related to the design of OER that I wanted to talk about is possible reasons why so few OER that are being published are accessible. The short answer is that it takes work and the knowledge to even know what to do. An important thing to recognize here is who is creating OER and what supports do they have. Creating OER is often very similar to self-publishing. There is no big publisher with teams of editors and designers. Instructors writing OER are often doing a lot of that work themselves. Sometimes they have financial support or course release, but they have to do a lot more than just write content.

And OER publishing is hard work. Someone writing an open textbook for the first time is likely using a new technology and learning about open licences, copyright, publishing, digital accessibility, and more. And then there is all the pedagogical elements that go into an effective learning resource. In the long list of things to keep in mind, accessibility often gets overlooked, and there is not always resources for accessibility remediation.

So the question becomes, how do we make creating accessible and inclusive content easier?

How can we empower creators to design OER that meet the diverse needs of their students?
What support systems need to be in place to make this possible?

One potential area to be looking into is how we can reduce the time and cognitive load that goes into creating an accessible OER, specifically through the design of OER publishing tools. OER publishing tools can both support and impede accessible authoring:

- These tools can prompt authors to provide text descriptions for images, or they can hide alternative text boxes in a large menu.
- They can generate printable versions of interactive activities, or they can rely on manual labour.
- They can provide an accessibility checker that identifies potential problems, or they can leave that to external tools that authors may not know about.

All of these things are design decisions, and one decision over another has the potential to really improve the overall accessibility of OER.

And that's the end of this section on OER design. Thank you for your attention. You are welcome to go explore one of the other sections or skip to the end to review the conclusion. If you have any thoughts you'd like to share with me, please do reach out.

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OER CONTENT

Josie Gray

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Topics covered in this section

- [OER as content](#)
- [Open content ≠ equitable content](#)
- [Indigenous knowledge](#)
- [Adaptation for inclusion](#)

Let's talk about content, what is actually in these resources? What are they teaching? What knowledge is being represented and how? Are diverse people, perspectives, and experiences visible, and if so, how are they portrayed?

This question of content is one that I am currently finding the most interesting.

OER as content

In open education, there is a lot of focus on how OER can increase access to education. This

makes sense, especially when comparing OER to commercial textbooks. OER are digital (which makes them easy to share) and free. Anyone with a device, internet access, and the knowledge of where and how to search can find and use these resources. However, putting something up for free online does not mean a resource benefits everyone the same, and I've been finding quite a lot of literature critically looking at OER as content.

Some of this critique questions the presumed value that OER advocates put on “access to information,” that by putting information for free online in the form of OER is making the world a more equitable place by increasing access to education. People making this critique are referencing the rhetoric used to promote OER as having a value globally and benefiting people in “third-world” countries who can access the resources for free.

Do OER make the world “flat”?

In 2005, Thomas Friedman published a book called *The World is Flat*. This book argues that the rise of the internet and access to personal devices has “leveled the playing field” in the world's economy, meaning that everyone has equal opportunity, regardless of where they live.



[Andreia Inamorato dos Santos \(2008\)](#) takes this metaphor of “flatness” and asks if access to knowledge (through OER) helps “flatten” the world and make it more

equal for everyone. She argues that Friedman’s argument is a fallacy because it does not consider broader economic and cultural factors, and that this fallacy can be found in the open education movement. She writes:

There is no consideration of the resources and skills that are essential at the very minimum to benefit from OERs, such as the access to a computer connected to the internet and a level of computer literacy that would enable the individual to search for these resources on the web... Access to content is good, but access to content that is meaningful, didactic and localised could be even more useful for the ones who truly lack education opportunities (p. 8).

Andreia’s argues that access to knowledge alone does not make the world a more equitable place. It matters what language the material is written in, it matters if the content is appropriate to an individual’s context, it matters what options a person has to access that content.

In 2013, Jeremy Knox published an article titled, “The limitations of access alone.” In this article, Jeremy criticized the open movement’s focus on “access to material,” and the common practice of portraying knowledge as “immune to the influences of digitization, interpretation or cultural understanding.” He points out that at that time, most OER were being published in the United States or Europe, so while access to that knowledge was free, it was specific knowledge written for a specific context, and access to open knowledge creation itself was still very limited.

Open content ≠ equitable content

To bring it back to a North American context, there is also the question of whether the content in OER being produced is inclusive and equitable. With all the rhetoric about how great OER can be for improving access to information, it is easy to overlook the many ways

that OER reproduce inequalities found in academia regarding knowledge production, assumed authority and expertise, and white supremacist, colonial narratives and perspectives.

Example

A concrete, obvious example I can provide from my own experience is an English literature textbook I worked on that included a lot of literature that is now in the public domain. While I was working on importing the requested pieces into the book, I noticed one of the stories included repeated use of the n-word. Then I took a closer look at the story and a few others and found numerous examples of racist, violent language and perspectives. These stories were provided with no content warnings or critical framing. Instead, they were put forward as examples of narrative writing style or character development or whatever else. I pushed back on the inclusion of that story and the author agreed to remove it, but it really woke me up to the fact that the content in OER can play a critical role in inclusion or exclusion.

I think it's fair to say that not including racist literature in an English class is a low bar.

Indigenous knowledge

To raise that bar would be to take a critical look at whose knowledge is being represented and how. These questions can be applied to race and culture, but they also include gender and sexuality, class, language, family structure, ability, and other forms of human difference.

And these conversations are happening. For example, there is a growing push to include traditional Indigenous knowledges in curriculum. One example is an open textbook titled [*Knowing Home: Braiding Indigenous Science with Western Science*](#). But while people writing and publishing OER are often eager to “Indigenize” their content, it is not straightforward. For one, the way many Indigenous communities understand knowledge preservation and ownership is fundamentally opposed to colonial understandings of copyright and authorship.



In addition, copyright law and colonial definitions of intellectual property have been used to steal and appropriate Indigenous stories and knowledge, which has caused a lot of harm. To address this gap, the [*Local Contexts*](#) project worked on developing a series of [*Traditional Knowledge Labels*](#) to help communicate existing protocols for access and use of cultural heritage materials.

To learn more about Indigenous knowledge in the context of publishing, I would recommend reading Rachel Taylor’s article titled, “[*Gathering Knowledges to Inform Best Practices in Indigenous Publishing*](#),” published in 2020. To learn more about Indigenous knowledge and Canadian copyright law, you can read “[*Indigenous Knowledge and the Question of Copyright*](#)” on the Indigenous Corporate Training Inc. website (author not listed).

Adaptation for inclusion

Another approach that people have taken to make OER more equitable is targeted adaptation. Adaptation is when you take an existing OER and edit it to fit your needs. One example I have found was a project to edit a [*Psychology open textbook published by OpenStax*](#).

Because OER are under licenced in a way that allow others to edit them, the goal of this project was to edit this Psychology textbook with the specific lens of diversity, equity, and inclusion. Using a crowdsourcing approach, “contributors were asked to read areas of the

textbook they were comfortable with and make suggestions to diversity the content.” Then the author took those suggestions and edited the textbook based on that feedback. This project ultimately found that the first-generation students who read the diversified chapter felt a greater sense of belonging than those who read the original chapter.

You can read more about this project in an article by Amy Nusbaum published in 2020 titled [“Who gets to wield academic Mjolnir? On worthiness, knowledge curation, and using the power of the people to diversify OER.”](#)

And that’s the end of this section on content. Thank you for your attention. You are welcome to go explore one of the other sections or skip to the end to review the conclusion. If you have any thoughts you’d like to share with me, please do reach out.

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OER AND PEDAGOGY

Josie Gray

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<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=308>

In this section, I will be talking about how pedagogy fits into OER (or doesn't). This section is pretty short, so a lot more work is needed here on my part. If you have suggestions of things I should be reading, please send them my way.

So let's talk about pedagogy. This is probably the area that I know the least about. I am not a teacher, and I am not an instructional designer. But I have the privilege to be able to work with and learn from others who are, and this is an important topic to discuss considering open educational resources are supposed to be tools for teaching and learning.

In 2015, following an OpenEd conference in Vancouver, B.C., Robin DeRosa, the Director of the Open Learning & Teaching Collaborative at Plymouth State University, published a blog post titled “[Open Textbooks? UGH.](#)” In this post, she offered a critical perspective on the conference's apparent focus on textbooks and creating content. In this post, Robin argues that textbooks are not great pedagogical tools, and that,

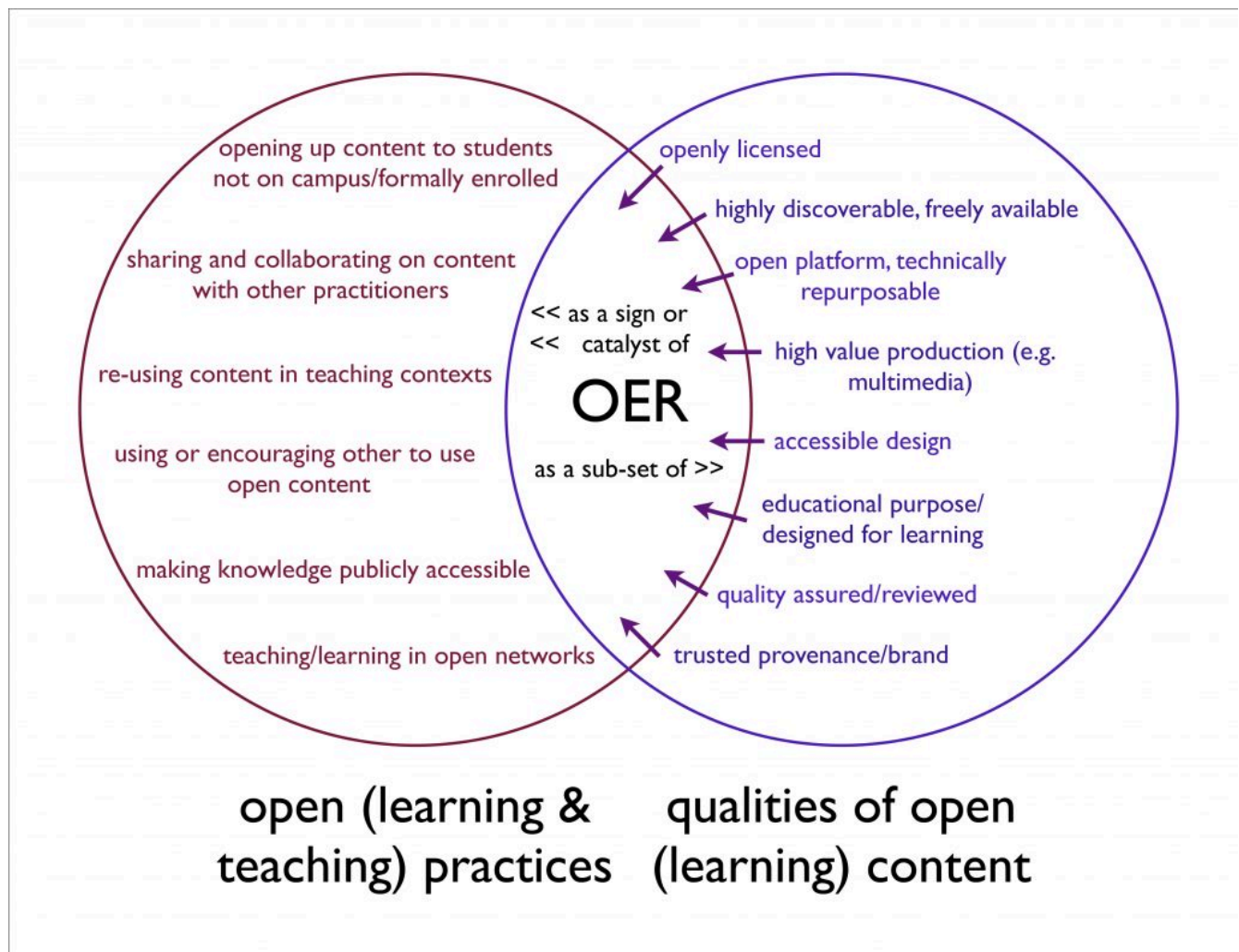
Textbooks, if we don't re-theorize them, have generally (just) been repositories for the master's ideas. Students absorb textbook content and achieve “mastery.” (Call it “competency,” whatever.)

Instead, Robin talks about open pedagogy. There are many definitions and understandings of open pedagogy, but one I will offer is pulled from a larger [discussion of open pedagogy](#)

provided by Rajiv Jhangiani and Robin DeRosa in the book [*A Guide to Making Open Textbooks with Students*](#):

We might think about open pedagogy as an access-oriented commitment to learner-driven education AND as a process of designing architectures and using tools for learning that enable students to shape the public knowledge commons of which they are a part.

Basically, open pedagogy aims to enable students to take an active role in their learning and move towards becoming knowledge creators rather than just knowledge consumers.



Robin is not the only person to argue for a greater attention to pedagogy rather than content. Her blog post generated a lot of debate, and similar arguments are made research literature.

But the reality is that textbooks are still widely used in post-secondary education, and because

I work in publishing and not in instructional design or teaching, I am going to leave these arguments aside for now. However, they do make important points that need to be considered.

If we assume OER in themselves have value, we can look specifically at how to design a resource to support learning. This includes things like the organization and pathway through topics, the scaffolding of information, providing clear learning objectives and key takeaways, and providing opportunity for reflection and application of new ideas and information. Again, I am not an instructional designer, but I have seen OER that are poorly organized, include walls of text, and make it hard to determine what is important or apply concepts to a current or personal context.

And that's the end of this section on OER and pedagogy. Short and sweet, as promised. Thank you for listening. You are welcome to go explore one of the other sections or skip to the end to review the conclusion. If you have any thoughts you'd like to share with me, please do reach out.

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WHAT'S NEXT?

Josie Gray

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Thank you so much for taking the time to explore my exhibit. I will be using this final section to summarize everything I've talked about so far and talk about some potential directions my project may take me.

This section includes

- [Open resources ≠ equitable resources](#)
- [Questions and more questions](#)
- [What's next](#)
- [Thank you!](#)
- [Keep exploring the exhibit!](#)

Open resources ≠ equitable resources

With my major research project, I want to look critically at OER publishing from an equity lens. In my experience supporting OER publication and managing the [B.C. Open Textbook](#)

[Collection](#), it is clear the many ways that OER can easily reproduce inequities found in traditional commercial textbook publishing and academia.

Many OER that exist are inaccessible to students with disabilities, content is not necessarily any more inclusive, and as materials designed for teaching, the pedagogical effectiveness of OER varies greatly. When looking at these issues, it becomes easier to understand how resources design, content, and pedagogy influence each other. If content is inaccessible, racist, sexist, or transphobic, it doesn't matter how good the pedagogical approach is. And thinking critically about resource design can make an OER easier for students to learn from.

In the section on [OER Content](#), I discussed criticisms targeting OER advocacy efforts that argue uncritically that free content on its own will make global education more equitable. This is an important reminder. Free content probably won't save the world, and free content does not mean good or relevant content. But content that is accessible, flexible, and inclusive in a radical way could have a real impact on those most marginalized in the Canadian post-secondary education system. But that affect won't happen just by hoping it does. It needs to be intentional.

Questions and more questions

So how do we get there when OER creation is decentralized and largely reliant on the will on ambitious instructors who have the time and job security to work on OER projects?

Ultimately, this will mean looking at the wider tools, processes, and practices found in the publication of OER and asking questions like, who is able to write OER? How does the technology available affect the resources being created? What strategies could be used to intervene in areas that are not working? How can the open licences on OER be leveraged to make OER better?

I am definitely not the first person to ask any of these questions. But they are complex questions that have complicated answers, and they are where I am starting.

What's next?

In terms of what is next, one project I am hoping to be a part of is the [adaptation of an existing Environmental Science open textbook to incorporate Indigenous knowledge](#). This project emerged from the [AIHEC Mixed Media Collective](#), a Tribal College and University community of practice focused on the creation and sharing of media content from an Indigenous perspective. This project is concerned with the process of adaptation and plans to have instructors support their students in creating content (open pedagogy!). However, the project will also be looking at resource design to see how Indigenous knowledge can be included without the design of the OER imposing a hierarchy of concerns or portraying Indigenous knowledge as on the periphery to the “main” content.

Thank you!

Thank you again for your attention! Creating this exhibit was a real challenge, but it also helped me organize the many ideas that have been swirling around in my head for the past six months. If you have thoughts or suggestions, please do get in touch. And if you have thoughts or feedback on the design of this exhibit, I would also appreciate that. This was my first real foray into audio, and I am curious how my exhibit could have been more accessible. My contact information is at the [beginning of my exhibit](#). And if you think what I am working on will be interesting to others, please do share. Bye!

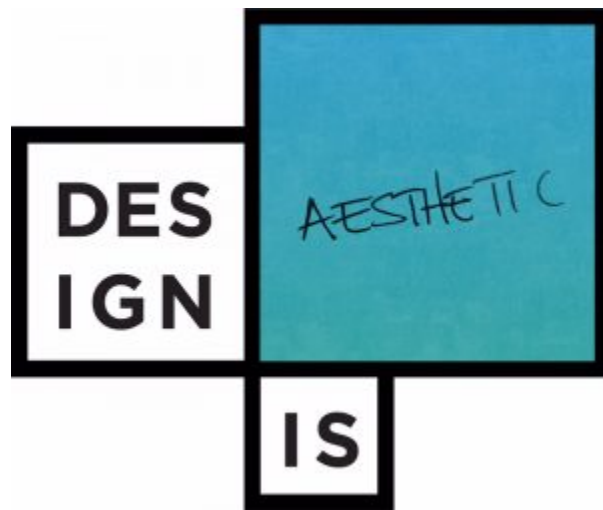
Keep exploring the exhibit!

You can click on one of the two options below.

[Inclusive Spectrums Home Page – I want to look at more exhibits!](#)

Inclusive Spectrums Survey – I would like to share my ideas and opinions

THE BLACK AESTHETIC - DIVERSITY THROUGH DATA BY JASON BURKE



Since the 1980s, I've been inspired by the intersection of cultural marketing and merchandising.

Athleisure brands like **Nike, Ralph Lauren and The United Colors of Benetton**, have shaped my aesthetic in all aspects of life. I intend to use **The Black Aesthetic, Big Data and Human Rights Messaging** to build public awareness and engagement for Anti-Black racism, to end racial discrimination in Canada.



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Nike, Dream Crazy Advertisement – 2018

A CALL TO ACTION

Connecting Black Artists, Creators and Scholars

Jason Burke

A community is defined as a group of people living in the same place or having a particular characteristic in common. In my experience, most professionals want to be identified by their specific discipline as they have worked hard to earn such recognition; but if there is a single takeaway I've experienced in 2020, it's that building awareness and engagement for **Anti-Black Racism** in Canada requires direct and willful investment of moving unknown names to become known names. Thus, because I live by the mantra **Search, Shop, Share**, below are three lists of Black, Canadian creators with varying aesthetics that I recommend learning more about:

Hip Hop Visual Aesthetic



Image of
Marcus Troy

[Alexander Weheliye](#), [Ernest Morrel](#), [George Eliot Clarke](#), [Joseph Schloss](#), [Orlando Patterson](#), [Adrian Aitcheson](#), [Stevey Carty](#), [Marcus Troy](#), [Naskademi](#) and [Sean Brown](#)

Black Pop Culture Aesthetic



Image of Drake

[Daniel Caesar](#), [Amaal Nuux](#), [Jay Whiss](#), [Drake](#), [Kardinal Official](#), [PARTYNEXTDOOR](#), [The Weekend](#), [Jully Black](#), [Torey Lanez](#) and [K-os](#)

Afrofuturism



Image of
Winnie Harlow

[Stacey McKenzie](#), [Winnie Harlow](#), [Janaya Khan](#), [Alondra Nelson](#), [Angelbert Metoyer](#), [Cyrus Kabiru](#), [Demetrius Oliver](#), [Jean-Michel Basquiat](#), [Octavia E Butler](#) and [Renee Cox](#)

Thank you for engaging with [The Black Aesthetic](#).

Stay Connected

BLACK LIVES MATTER

We Live In A Different World

Jason Burke

My name is Jason Burke.

I am a Masters of Inclusive Design, candidate at OCAD University.

On August 1, 1999, I was Racially Profiled by the Toronto Police Services.



A YouTube element has been excluded from this version of the text. You can view it online here:
<https://ecampusontario.pressbooks.pub/incd2020exhibit/?p=1473>

Since that time, I have focused on overcoming the trauma associated with being Racially Profiled, by building a career that has driven and empowered me to focus on Social Injustice through Art and Expression.

Somewhere between 2009 and 2010, I began losing my hearing which quite possibly is a direct result of my encounter with the police the night of August 1, 1999 and/or 18 Years of playing football at Lakefield College, Peterborough Collegiate and Wilfrid Laurier University. Regardless, having graduated high school with the highest award in the visual arts combined

and the male athlete of the year award, I am uniquely prepared as a thought leader of The Black Aesthetic.

“Visual culture is the aspect of culture expressed in visual images. Many academic fields study this subject, including cultural studies, art history, critical theory, philosophy, media studies, Deaf Studies and anthropology.” – [Wikipedia](#)

The purpose of my research is to build awareness of Anti-Black racism in Canada and show how The Black Aesthetic can be a catalyst for change on the Path to Purchase. By exploring Social Justice through Art and Expression, I intend to create a marketers playbook for change using addressable media, big data and human rights messaging.

WHY WE CAN'T WAIT

The Slow Pace of Equality

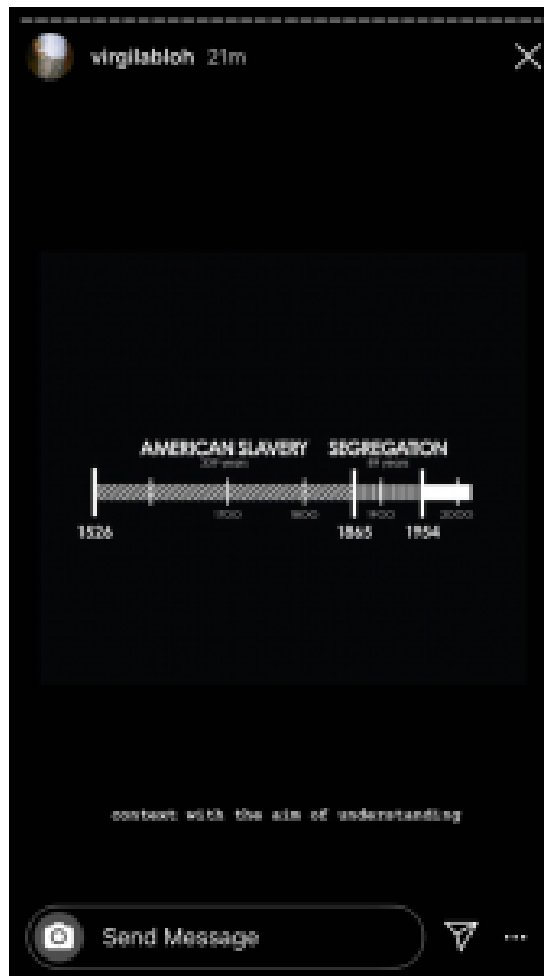
Jason Burke

Since Mid-March, the world has locked down communities to slow the spread of the Coronavirus delivering both an emotional and socioeconomic toll in the trillions of dollars that the Global economy has not experienced since WWII.

During this period of social distancing, George Floyd, a 46-year-old Black American man, was killed in Minneapolis, Minnesota, on May 25, 2020, during an arrest for allegedly using a counterfeit bill. For eight minutes and forty-three seconds, [Derek Chauvin](#), a white officer, knelt on Floyd's neck while handcuffed, lying face down and repeatedly saying, "I can't breathe."

Floyd's death is not the first to trigger subsequent protests against police brutality, systemic racism, and a lack of police accountability. In 2016, NFL Quarterback [Colin Kaepernick](#), took a knee during the playing of the American national anthem to bring awareness, engagement and Social Justice for systemic racism experienced by black people in America. As a result of his actions and position on race relations, Kaepernick has been ostracised from the NFL for four years.

Having experienced police brutality first hand, the summer of 2020, reminds me of the price Colin Kaepernick paid with his career and the price Dr. Martin Luther King paid with his life five years after penning his landmark book entitled, Why We Can't Wait, in the summer of 1963.



[Virgil Abloh, Instagram Stories](#)

In this book, Dr King states that, “The Negro had been deeply disappointed over the slow pace of school desegregation. He knew that in 1954 the highest court in the land had handed down a decree calling for desegregation of schools “with all deliberate speed.” The negro knew, “that this edict from the Supreme Court had been heeded with all deliberate delay. At the beginning of 1963, nine years after this historic decision, approximately 9 per cent of southern Negro students were attending integrated schools. If this pace were maintained, it would be the year 2054 before integration in southern schools would be a reality.” – [Dr. Martin Luther King](#)

Collectively, the intersection of these experiences inform us that the world has the power to shut down international borders, prioritize healthcare systems to “flatten the curve” and focus on health care and preventative measures for Baby Boomers, who represent the most

vulnerable cohort of the pandemic; even at the expense of the global economy. If then the world could shut down to save lives, is it then feasible for immediate and rigorous action to be taken in order to flatten the proverbial curve when it applies to Anti-Black racism and ultimately Black lives?

PICK YOUR OWN COTTON

Decolonizing Traditional Power Structures

Jason Burke

In December 2019, I participated in a gallery show entitled **The Circle**.

The premise of the class was to decolonize and democratize the traditional learning environment which was built for white “scholarly gentlemen.” The course, **Decolonizing the Book**, laid the foundation for my current project... **Diversity Through Data**.



Burke's, Why We Can't Wait Installation

Because African Canadians are customarily underrepresented in all socioeconomic communities and sectors of our country, it is important to me to visualize this work as if I was presenting at the **AGO (Art Gallery of Ontario)** in a medium that would accurately illustrate the sheer weight of the emotional and physical machines relied on to enslave African people in America, Canada and in various communities of the world.

By focussing on the **Cotton Gin, the Printing Press and the Wright Flyer Engine**, I want

visitors of this exhibit to appreciate that for four hundred years these machines in parallel, with slave labour were used to build generational wealth, plant power structures for white institutions and set up administrative protections that can only now be dismantled with technology for the first time in modern history. Can you imagine the full weight of any of these machines placed on your neck for a period of 8:46 seconds?

Cotton Gin



Low End Theory | Whitney Museum of American Art

“Cultivation of cotton using enslaved Africans brought huge profit to the owners of large plantations, making them some of the wealthiest men in the U.S. prior to the Civil War; Slaves were the most important asset in cotton cultivation, and their sale brought profits to slave owners outside of cotton-cultivation areas.” – [Wikipedia](#)

Printing Press

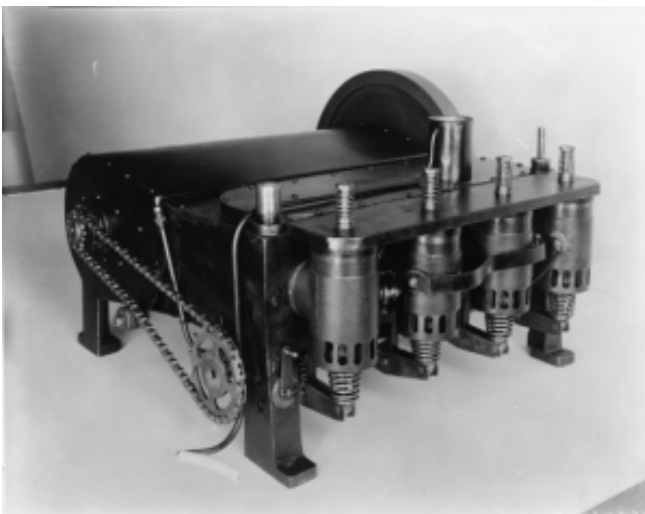


Industrial Revolution Printing Press

“Since the age of African enslavement, music has been the cornerstone language of African American identity. Because reading and writing were forbidden according to the rigors of plantation life. Music then became the only accessible form of communication. Hundreds of years later, in inner-city neighborhoods plagued by high illiteracy and dropout rates, music remains the most dependable medium of expression. Thus, Hip Hop is to modern-day as Negro Spirituals to enslaved Africans on the plantations of the old South; The emergent music articulates the terrors of one’s environment better than written, or spoken word, thereby forging an “unquestioned

association of oppression with creativity [that] is endemic” to African American culture.” – [Wikipedia](#)

Wright Engine



Wright Engine from Industrial Revolution

“Because the ancestors of many African-Americans were forcibly removed from their homelands and stripped of their history like most enslaved Africans, any culture that has found its way into the Black lexicon is at its roots an Afrofuturist notion. It is at its heart reclaiming a past erased and creating a future based on that reimagined past. – [Wikipedia](#)

Black people are disadvantaged not just because of the color of their skin but because of the relentless socioeconomic weight of four hundred years of systemic racism on our communities.

THE CULTURAL DIVIDE

The Right People, At The Right Time And Place

Jason Burke

I remember my cousins fondly calling me Dr. J, when I was young.

I remember on summer vacations travelling to New York City and Los Angeles where I was exposed to **hip hop culture and skateboarding**. I remember growing up idolizing Michael Jordan and experiencing how his on and off court style brought multiple segments of Youth Culture together.

I remember discovering *GQ Magazine, Nike, MTV Raps, Sports Illustrated and The United Colors of Benetton* clothing. I remember how these brands introduced me to the notion that Social Justice through Art and Expression was an effective way to connect with sub-culture and communities of individuals who rejected mass advertising and traditional norms.

Planning for **Social Justice** is a lot like building a wardrobe in an era of change. Cultural and technological change keep happening at warp speed. We've evolved, we demand exceptional experiences, and we expect to be treated as individuals. It's this intersection of **Art, Big Data and Expression**, that Digital Transformation when layered with **The Black Aesthetic**, is poised to be precisely the cultural catalyst of change required to eradicate **Anti-Black Racism** in Canada.



“Hip Hop gave young African Americans a voice to let their issues be heard. It also gave people a chance for financial gain by “reducing the rest of the world to consumers of its social concerns” – [Wikipedia](#)

I often think that *Sneakers Saved My Life*, because when I started publishing my vision of *The Black Aesthetic* at [snkrbox.com](#), it quickly became a platform for me to showcase my style, connect with the public and target the right people, at the

right time and the right place. For example, within the scope of *The Black Aesthetic*, I’ve learned that special populations protected by human rights legislation continue to be marginalized, for example **women, LGBTQ, the various religious doctrines, people with disabilities and the social classes**. Thus [snkrbox.com](#) has become a platform for me to connect, engage and share with these communities openly.

The learnings derived from engaging with these communities have helped me to understand different points of view as if I had deconstructed the canvas made from the cotton gin hanging in colonial institutions around the world. I am now able to demonstrate empathy, practice inclusion for other marginalized communities through literacy in the form of my **Major Research Project** and explore possible solutions to grow both personally and professionally with **Big Data** as my “North Star”. This is much like an underground railroad that could ultimately lead to cultural empowerment and diversity and inclusion for all Canadians.

Digital Transformation has accelerated the gap between the exclusive nature and weight of historical power structures. It also illustrates how through a **Visual Aesthetic**, and in the case of this study, **The Black Aesthetic**, is a cultural catalyst for **Social Justice through Art and Expression**, including on the **Path to Purchase**.

Thus through **The Black Aesthetic, Big Data and Human Rights Messaging**, this MRP

intends to galvanize public awareness and engagement of **Anti-Black Racism**, with the goal of addressing racial discrimination across Canada.