

CANADIAN JOURNAL OF

Disability Studies

Published by the Canadian Disability Studies Association · Association Canadienne des Études sur l'Incapacité

Canadian Journal of Disability Studies

Published by the Canadian Disability Studies Association

Association Canadienne des Études sur l'Incapacité

Hosted by The University of Waterloo

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Accessibility for Different Abilities: A Report

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Abstract

Active participation is the foundation of the Inclusive Design Research Centre (IDRC) where the Inclusive Design Research Lab (IDRLab) is located. The IDRC’s goal is to establish a relationship between users and designers driven by a symbiotic reciprocity. Ultimately, “A successful Participatory Inclusive Design Lab is one in which users not only believe, but also witness, that their contributions matter” (Treviranus, 2012). This goal requires a degree of social connection and an environment in which people care significantly about each other and what they are working to create. Supporting this concept is the social model of inclusion, based on respect for human rights that underscores the responsibility of IDRLab to create all possible conditions of full accessibility. This report describes how barriers to inclusion were removed to enable people with disabilities to participate in the IDRLab.

Keywords

Inclusive Design; Accessibility; Inclusive Design Research Lab; disrupting/Undoing

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Introduction

Persons with disabilities face a daily battle to integrate into the communities to which they belong because of barriers to accessibility, and for the same reasons they face ongoing challenges to live with dignity while participating in all aspects of life. It is critical that people with disabilities be empowered to control and make decisions about policies and solutions that affect their lives — an opportunity that is often denied them. Persons with disabilities have demonstrated that they are the best experts of their needs and that is why they must be active participants, individually and collectively, in designing and promoting better solutions for their lives (Bagenstos, 2009).

For too long policies concerning persons with disabilities have been focusing on institutional care, medical rehabilitation and welfare benefits. Such policies have been built on the premise that persons with disabilities are victims, rather than subjects able and entitled to be active citizens. The result has been that men, women and children with disabilities have had their civil, cultural, economic, political and social rights violated. Over the last few decades a shift in thinking has taken place. It is no longer correct to view persons with disabilities as objects of charity. They are citizens with equal rights and have an active role to play in our societies. One problem has been that policy makers did not listen to this group before taking decisions that concerned persons with disabilities (Directorate General of Social Cohesion of the Council of Europe, 2008).

The aim of movements, such as Independent Living, is not to make a person “normal” in a physical or mental sense. Independent Living emphasizes the right, and the importance, of people with disabilities to have ordinary life experiences. In Canada, and in particular in Ontario, this thinking became law with the enactment of the *Accessibility for*

Ontarians with Disabilities Act, 2005 (AODA). The bill’s original purpose was to achieve a barrier-free Ontario for persons with disabilities, but it has since evolved to encompass a right of full participation: “The people of Ontario support the right of persons of all ages with disabilities to enjoy equal opportunity and to participate fully in the life of the province” (AODA).

This awareness has opened the door to a complete change in point of view; we have moved from a concept of disability to the much broader view of accessibility and inclusion. The dominant interpretation of disability, according to Tanya Titchkosky in her book *The Question of Access: Disability, Space, Meaning*, is derogatory; it “tacitly relies on the concept of non-disability as normal and disability as a negative abnormal condition with which some people must deal” (Titchkosky, 2011). Even further, “Individualized conceptions of disability, such as the World Health Organization’s, require that impairment be treated as if it is the cause of disabled peoples’ lack of participation in education, employment, leisure, and love” (Titchkosky, 2011). This concept of disability goes against the concept of an inclusive culture. Disability is perceived as how the world is for some and not for others. Working on the meaning of an inclusive culture is the exploration of the meaning of our life together (Titchkosky, 2011). However, the interaction and intersection of these two concepts—disability and accessibility—cannot be ignored. Both are frameworks based on the principles of inclusion, equity, affordability and justice. Yet issues related with these still seem peripheral to many areas of application, such as information and communication systems. This area of application is in demand of a bold, new, innovative vision of end-user control and choice.

Information and communication technologies have become an inextricable part of our lives. However, mainstream developers have not kept pace in terms of answering the needs of the many diverse users. In this regard Melanie Yergeau argues that developers have been positioning disabled persons as passive recipients, following a rehab approach. She says:

It creates an us/them divide between the able-bodied savior-designers and the disabled victim-users. It positions disability outside the scope of design or co-production, some of our dearest concepts. If you listen for this assumption, you will hear it all the time: for example, the statement made at one of Computers & Writing's Town Hall meetings in 2011, that we should remember not everyone can access the new, cutting-edge technologies that we access (Yergeau et al., 2013).

With only few exceptions, the reality is that most information and communication technologies are created for the mythical average user. It's imperative that the needs and requirements of people with disabilities, who do not fit the category of “standard,” are considered during the design process.

The Inclusive Design Research Centre at OCAD University, in Toronto, has created a participatory lab space fully dedicated to the culture of accessibility: the **Inclusive Design Research Laboratory** (IDRLab). Here, a team of designers and developers work *with* persons with disabilities, rather than *for* them. The team employs an inclusive design approach that focuses on creating interfaces designed for the full range of human diversity (Treviranus, 2014). Their efforts are joined by more than 100 other collaborating organizations (national and international), from both the private and public sectors. They intend to provide everyone—but especially individuals and groups who have been marginalized—with an opportunity to provide input to the design process. To do this, the Lab engages a diverse group of *individuals with different abilities* in the

design process that aims to create flexible schemes that will adapt to the needs and preferences of diverse users. The lab is one part of a bigger endeavour—the Open Gallery. The Open Gallery provides an accessible multimedia performance lab (accessibility extending to both audience and performers), gathering areas (to socialize), an exhibition gallery (that promotes the accessibility of culture), and the actual IDRLab—all as part of an infrastructure built to support research into inclusive design of culture and the arts. The IDRLab has generated a uniquely accessible network of tools and applications to ensure that previously marginalized groups can take advantage of online collaboration, design, learning management, digital repositories, and web-content management tools. The goal of the Lab, as stated by its Director, Jutta Treviranus, is: “to deliver the right resources to the right person in the right way.... We want to bring the end user into the development process” (Henderson, 2010). In this approach, Treviranus makes us aware that we “would eliminate the current binary view of the world—the one that divides it into disabled or not disabled, them or us” (Roberts & D'Intino, 2012). At the IDRLab, “We are designing *with*, not *for*.”

One overarching purpose and commitment of the IDRC is to involve the larger community and a diversity of end users in its mission. In doing that, the IDRC team works in a co-design relationship with end-users from the beginning of any project. More than 100 listed collaborating organizations are engaged in the research at the IDRC.

The purpose of this report is to share how IDRC makes its space a gathering place for this large community as well as which methods we employ in removing possible barriers. Three questions will guide us:

- I. What does it mean to be involved in an inclusive culture?
- II. What is the experience of co-design?

- III. How can we create a space of affinity where there are no barriers that prevent participation?

I. Being Involved in an Inclusive Culture at the IDRC

Contemporary society is facing a challenge: how do we understand, share and communicate with one another in the most vital matters, especially as there are new mediums and technologies that we have never before had available to us? Our first response is to generate first an inclusive culture. Why?

An inclusive culture generates a climate in which respect, equity, and positive recognition of differences are all cultivated, and the social and institutional response to disabilities constitutes no-obstacle to a positive co-design experience. Inclusive culture carries first a question of belonging: who belongs to this experience? Do you belong? Do we belong? —We believe that everybody belongs. For that we work in different types of community engagement models to encourage persons with disabilities to participate in various projects and programs at OCAD U.

When persons with disabilities are equipped with the skills and resources needed to create change in their lives and communities on their own terms, amazing things can happen. The intention of the IDRC is to join grassroots networks of diverse projects and initiatives and work together toward collective goals to advocate, raise awareness and inspire transformative policy change.

When an end-user agrees to participate in one of the IDRC projects, he or she is expecting—to some degree—a certain level of connection or concern with that project on a personal level. Persons with disabilities report difficulties with daily living activities. Current social models of disability tend to focus on transformations and adaptations required to live in society, and not on enabling individual participation. The result is often

a failure to accommodate and include people who have physical or mental characteristics that differ from those whose bodies and minds more closely conform to social norms and expectations (Oliver, 1990). As Catherine Frazee expresses in the Canadian documentary *Shameless*:

The problem is not that I cannot walk. The problem is that I find myself living in a society which is premised in the most fundamental ways upon the assumption that everyone, or everyone who matters, does walk, in that quaint, if rather laborious biped sort of way (Klein, 2006).

It is time in contemporary discourse to shift our understanding of disability towards social and cultural frameworks to create an inclusive culture. This is where the Inclusive Design Research Centre wants to make its contribution. That was the case of the collaboration with the Canadian Museum for Human Rights. Dana Ayotte, one of the team leaders, says:

While the motivation for the use of a keypad may have been to provide touch-screen kiosk accessibility for blind users and users with low vision, we believe that many other aspects of accessibility should be taken into account when designing the kiosks. Not only must we consider users with multiple disabilities (e.g. low vision + reduced co-ordination, or a wheelchair user with reduced strength who uses the keypad because she cannot reach all features on the touchscreen)—we believe that in order to achieve a successful design, the definition of disability must be reframed as a mismatch between the user and the user interface. In this sense a successful design is one that meets the usability needs of as many users as possible, thus providing a fully functional and an entirely enjoyable experience for everyone (that is, why not make the keypad so fabulous that everyone wants to try it?). The earlier in the design cycle that accessibility features are considered, the more integrated these features will be, and the more likely we are to achieve a successful design.

Who brings what to the Lab

End-users bring closer connection to lived experience of community and the life of persons with disabilities; meanwhile IDRC’s team brings experience with research and

design. Persons with disabilities have the unique skills and experience; our team has the methodological expertise, equipment, software and hardware.

In one way, inclusive design focuses on the humanization of technologies for as broad a user group as possible. In another way, it leads us to consider how our behaviour and activities may be exclusionary. An accessible focus on inclusion leads researchers, designers, and end-users to demand and create an environment that brings tangible and real encounters. Participation of end-users as co-designers ensures that the interface decision reflects actual user needs as much as possible. That is why inclusive design is also described as socially responsible design.

Another case that illustrates “who brings what to the Lab” was the design of the ecosystem of tools for the Preference for Global Access (PGA). The goal of these tools is to allow any user to easily activate the settings and preferences they need to access the device they are on and the information they desire. Since users’ needs are varied and far-ranging, the more flexible and adaptable these tools can be, the better they will achieve the goal. IDRC director Jutta Treviranus explains:

Our primary goal in this project is to figure out ways to enable diverse users to discover and refine their understanding of what works for them, in different contexts, for different goals, and declare that in a machine actionable way. Part of this goal is to explore needs and preferences that are currently under-served such as cognitive access. Important areas to explore are how do we present different discovery experiences for different users and different goals? What would it look like for a kindergarten student and their teacher, for a new resident of an assisted living facility, for a new immigrant who has limited literacy, etc. What would an independent experience look like vs. an experience with a therapist or caregiver helping? How do we integrate and verify the choices we can glean from interfaces or experiences the user identifies as optimal? How do we enable the user to refine their choices? (Treviranus, 2013)

End-users are constantly present in our research. End-users have the ability to affect grassroots change; IDRC has the ability to affect policy changes.

II. The Co-Design Experience (Co-DEx)

The Co-Design Experience (Co-DEx) is a collaborative approach to research that fairly involves end-users and IDRC's team in the design/research process and recognizes the unique strengths that each brings. Co-DEx starts with a project of importance to the community with the intention of combining experience, knowledge, and action for social change to improve the life of persons with disabilities.

Co-Design Experience at the IDRLab is a participatory design methodology that challenges traditional ways of doing design. Treviranus says, "What is essential in design is the reality of experience. Rather than a traditional, staged sequence of design and then development, the design (including co-designers) and development teams will create small, iterative cycles that enable continuous refinement based on feedback from real use cases and informal hands-on testing" (Treviranus, 2014). This is the path that we chose at the IDRLab, an authentic experience of understanding. The Co-DEx at IDRLab is the integration of the shared world of designers and end-users throughout the common language of a new inclusive culture.

A true work of design always says something about the world we inhabit. At the IDRLab, the goal is to point out some aspect of our reality and in doing so make a meaningful claim about our world. IDRLab has a kind of force that leads everyone to a more profound understanding of the human condition. Sometimes, it even changes people's old habits and transforms their lives. The experience of participatory, inclusive, art and design does much more than make us feel something. It educates us about our

world and our existence in it. It is a mistake to view inclusive design as disconnected from reality, especially when it is grounded in the everyday experience of extreme-actors as both users and co-designers.

Designers do not live, experience, or create in a vacuum, but rather within an influential context, a context in which their work will inevitably find meaning through users participating in the process of creation. Secondly, inclusive design is not merely an unknowing, unconscious increase of creativity and expression, but an articulation of some truth about our shared world. But how can we approach this ultimate experience? I have found the answer in my task of engaging with the large community, which is "playing."

Hans-Urs Gadamer philosophically extended the concept of "play" (Gadamer, 2004); this work-concept allows me to consider the experience of design at the IDRLab. In this work-concept I found the key to understanding how it is that we must approach the "other" in order to make him or her participate in a fruitful and transformative event that unlocks our ability to communicate with each other and develop a higher shared grasp of the subject matter at hand. Working on the very genuine dialogue and understanding in participatory inclusive co-design, I am going to describe what happens when the play of understanding goes right, and what happens when it gets blocked or breaks down. The "play" work of participatory inclusive co-design is crucial for educational development and for our very existence as human beings desiring an inclusive culture. The transformative work of following the dynamics of "play," is a way in which all players (end-users & designers) participate in the community of inclusiveness at the IDRLab. Let us go through this work-concept:

Play Invites Accessibility

To some degree, all activities and events at IDRLab require users to put themselves in the mood of play. When we are immersed in the experience of *play*, an invitation is sent to participate in a different communicative dimension. Johan Huizinga, one of the first philosophers to work with the concept of play, says that play is more than a mere physiological phenomenon or psychological reflex, “it is a significant function — that is to say, there is some sense to it” (Huizinga, 1972). At the IDRLab, the sense is brought by users and their individual needs. This process establishes an order, or method. Play means the fact that all users and designers let themselves be seduced dialogically to dive into the game. At the IDRLab both playing together put into practice a culture of inclusiveness.

All activities at the IDRLab are an invitation of participation. This challenges the players’ capacity to experiment with their surroundings, as a form of art and a form of problem-solving. For this purpose two dimensions are required: *Performance* and *Accessibility*.

Performance

Under the feasibility of how designers can adopt alternative identities for the purpose of improvisation and discovery, the performance, or the execution of any work of design, will find its echo in the user’s inner ear. This process leads first to a transformation of that work of design, and secondly to the transformation of the participant. Suddenly, the players see with new eyes; both users and designers are transformed. A work of inclusive co-design not only transforms the potential user, but also transforms those which are involved in it, captivated by the process of co-design, and inspired by the unpredictable

co-creation. In everyday life we are too absorbed in our activities and our daily concerns; an inclusive culture takes us out of our indifference to the world and opens our eyes to what it is. This is the experience that the IDRLab looks for. The co-design process for the CMHR kiosk was based on a user testing protocol, where these principles were kept in mind:

- Probe the user on expectations, frustrations, and general thoughts.
- Avoid influencing the user's decision-making and deflect questions to gain further insight into the user's thoughts (e.g., to the question, "What does this do?" respond, "What do you think it does?")
- Don't offer help; let users attempt to perform the tasks themselves. If they ask for help, reply with probing questions such as:
 - "What do you think you should do?"
 - "What do you think that means/would do?"
- Reassure the user that we are not testing the user—we are testing the application, and there are no wrong answers.
- Ask the user to think aloud whenever possible.

In this particular case the co-design process was performed throughout the testing; users helped the team to expand horizons.

Accessibility

Designers can meaningfully sample and remix media and content to remove and prevent barriers to accessibility. The individual user with different abilities is invited to detect and alert designers about ways in which they are able to access. The idea is to create an "aesthetic of access." This is an art practice that takes into account accessibility in the creative process. The play could be called "providing access," a game where extreme-users play together with the designers. The former access their own experience which is going to illuminate the designers' work, the latter find ways of access that can resolve the issues of the individuals with different abilities. This includes artistic practices and

processes grounded in ensuring that the lived experience and identities of users are conveyed, explored and represented. They bring disability perspectives, expressions, lived experience, and distinct ways of being into the inclusive design. These practices include experiences that reference everyday life, stories, metaphors and relationships from a wide range of perspectives. One example is "Tecla," a project of Komodo lead by Jorge Silva, who adopted an innovation model based on open source, which allows users to adapt, enhance and build upon our technologies. The team as designers works with end-users in different ways. In early stages, the design goal was stated loosely as "To provide access to emerging mobile devices (smartphones & tablets) for people who are unable to use a touch-screen with their hands." (Silva, 2014) This goal was first articulated through informal interactions with end-users, who identified the lack of appropriate access methods in early mobile technologies (i.e., the iPhone / iPad). Those who would eventually become the project's "designers" made those early informal interactions possible through completely unrelated activities in clinical and research settings. Silva explains the process saying,

Initial prototypes were then circulated through "early adopters" who were eager to provide feedback on the technology. These early adopters were not typically end-users, but other researchers and clinicians interested in resolving this problem. A third set of design iterations, which resulted in the first "user-ready" device, finally included end-users in a commercial context. That is, end-users learned about, and purchased, our device through their own research, initiative and resources. This first "commercial" design phase then helped establish a Beta program that enabled us to systematically test new ideas and technologies through technically and design-savvy users who provide prompt and substantial feedback in exchange for early access and/or deep discounts on the resulting products (Silva, 2014).

This example shows how users with different abilities can be the co-designers, or main contributors to the design or artistic process.

As it was said before, persons with disabilities are the best experts on their needs, and that is why they must be active participants—individually and collectively—in designing and promoting better solutions for their lives. Through visual representations in art and design, disability communities can find a voice and the tools they need to contribute to society. The embodiments, languages, histories, and lived experiences of individuals with disabilities bring distinct perspectives to inclusive design research, shifting perceptions of human diversity and artistic expression. When disabled persons are appropriately supported to actively engage in meaningful research, they experience a sense of belonging and control over their lives, and have the opportunity to bring alternative perspectives to the design process.

Describing how this might be illustrated from experience in the inclusive-participatory-co-design event, we observe that until an end-user tests and reveals the true and false prejudices designers bring to each situation, they won't appropriate a sense of participation. It is here that the dialogue, the conversation, and the merging of horizons is essential to keep the dialogical sense of the IDRLab in touch with the horizon of the present.

Inclusive design is not an abstract ideal that we can observe from a distance, but a concrete expression, an application experienced through the involvement of every designer together with every user. Inclusive design must be aware of the way most extreme-users are in the world; their experience is living knowledge. Co-design experience is made in daily life with all the uncertainties and ambiguities that accompany it. For that, designers develop the ability to follow the flow of stories of different participants across multiple modalities. In the case of “Tecla,” the team identifies some

distinctions between designers and users. These distinctions, however, resulted in a complementary set of affordances that guide the project in a specific direction. This experience would be completely different (perhaps even non-existent) if each group acted without the other. According to Silva, the main contribution of the end-users in the design process is "validation". Silva says,

This has the effect of guiding the process of design in a very specific way. This is not to say it is "better" or "worse, but simply to say that it allows the designer to hone-in on the most promising pathways to solving a problem, allowing for the efficient dismissal of all those potential solutions that are most obviously incompatible not only with the end goal (which is generally obvious and does not generally need to be verified by an end-user), but most importantly, with the context of use, which includes variables and constraints that are not always evident to the designer, and may not be fully constructed by end-users, but which their early engagement almost always exposes (Silva, 2014).

As it can be seen, all activities at the IDRLab are an invitation to search for new findings as part of the play. The Lab invites players to discover, uncover and reveal them. All the events at the lab are a vital expression of the meaning of inclusive design through:

- a) *Networking*: which improves the ability of individuals with different abilities, artists and designers to search for, synthesize, and disseminate information.
- b) *Collective Intelligence*: which looks for the best ways in which to compare notes and work to pool knowledge with others toward a common goal. The ultimate goal of play goes toward to creating community.

The feeling of being together in an exceptional situation, of sharing something as important as inclusive design, retains its magic beyond the duration of the practice that is the gathering events. Each encounter, each practice, each meeting is always a delightful excuse to get together and celebrate our passion for inclusive design.

The IDRLab has a contribution to make in helping people with different abilities, together with designers, acquire the skills they need to become full participants.

Throughout, there are two considerations:

- a) *Multitasking*: that is learning to scan one's environment and shift focus as needed according to new situations.
- b) *Socializing*: developing the ability to travel across diverse communities of individuals with different abilities, discerning and respecting multiple perspectives, and documenting alternative norms.

Inclusive design acquires its full dimension when everyone participates. In this resides a kind of accessibility. By their very nature, the relationship between festival and play is very close.

III. A Space of Affinity

Another important aim of IDRLab is to encourage all players to become more reflective about the ethical choices they make as participants and communicators, and the impact they have on others. When persons with different abilities are appropriately supported to engage in these activities, they experience a sense of belonging and have a sense of control over their lives. Consequently, the IDRLab team works alongside individuals, groups, and organizations, principally within communities that are marginalized and excluded. IDRLab challenges the notion that solutions to local problems are found outside individuals themselves; and it seeks to identify and develop the skills and confidence of local people to address issues they themselves define.

IDRLab gathers all the projects of the Inclusive Design Research Centre and the Inclusive Design Institute, programmed activities with other partner organizations, art exhibits, cultural events, and public debates and monitors them in four areas:

Welcoming language

What mental models and metaphors translate across cultures and sensory modalities

The welcome is possible only in determined conditions and the acceptance is based on unequal relationships. In fact, it is a matter of an integration process. First is to take into consideration each individuality and condition, always under a diversity perspective. The IDRLab explores integration and inclusion while also using innovative techniques for engaging in dialogue with marginalized populations. Dialogue implies participation. Innovative and inclusive participation requires an understanding of the different abilities and skill sets that people contribute when interacting with each other through various mediums. The Arts are a major component of innovation – one that is essential to the cultural and economic prosperity of any society. The Arts are leveraged to bring voice to those who are marginalized, enabling them to participate with others and bring new ideas to our ever-changing culture, ideas that might otherwise be excluded. The process of making art provides ways of welcoming and communicating experience through organic, highly adaptive communities that are essential to the ever-changing landscape of the digital age.

Hospitality

How to accommodate multiple, possible conflicting individual needs in a collaborative environment

Diversities should not put in a problematic of being different. Including all kind of reciprocities is going to put the members of the welcoming community at the end in the same condition of those requesting welcoming. Create a place where everybody can preserve their own identity (principally in all future gatherings), where it is possible to

construct physical settlements and personal space, and live each one their cultural connotations.

Participation

How to conduct usability research and interpret user data when there are multiple possible configurations of the user interface to evaluate

Real participation is active. It gives people a meaningful personal stake in a project. Full participation is inclusion. Inclusion is a complex process that implies to transform rules, behaviours, and aptitudes. Involving people at the following levels can meet our participation aim, where inclusion needs those instruments of participation and appropriate rules of play. It should be, in equal basis with others, no place for discrimination. It should be respecting dignity and celebrating diversity, taking away barriers and prejudices, and supporting participation based on inclusion.

Engagement

How to encourage users to take greater control of the configuration and design of their user interface

The slogan of the disability movement is clear: "Nothing about us, without us." Extreme users are the real experts of their own life. In only 20 years the movement of persons with disabilities has managed to transform culture, legislation and technologies, improving and deepening the quality of life for all people.

IV. Projects

disrupting/Undoing

With *disrupting/Undoing*, a collaborative project organized through Diversity & Equity Initiatives, the IDRC and the Criticism and Curatorial Department at OCADU in 2013, we carried out these four aspects. The week-long event was undertaken by faculty, IDRC staff and students to present works of art and design innovations that challenge our current constructs of disability. This event brought voice to artists, designers, educators, and was inclusive of those with disabilities, enabling all to participate with one another and to bring new ideas. The Salon created an open and accessible space where new voices were listened. Through a collaborative curatorial team approach (inclusive of the disability community), the team put into practice the core principles central to the Accessibility for Ontarians with Disabilities Act (AODA) legislation. Those are: dignity, independence, integration, and the equality of opportunity to allow for a variety of understandings of disability arts and to ensure a reputable process. Through painting, photography, sculpture, assemblage, performance, design and technology, the artists' representations and considerations did much to address our notions of what a disability is, and who the disabled are, and to shift our experience of looking in the art gallery. At the end, we reached our goals, which were to use collaborative creative activities as a way to engage students, faculty, staff, and alumni in the experience of inclusive design participation, such as:

- To host the disrupting/Undoing Art Exhibition-Salon, open to all.
- Conversation Cafes: These open conversations hosted at the IDRLab were intentionally organized as part of efforts to gather end-users to exchange something more than small talk on a regular basis. The agenda was set in hopes create stimulating conversations among a diverse set of daily life situations to further explore, develop, and rehabilitate their own opinions through the engagement with the IDRC team.

- Film discussions: It gave adults and young people with disabilities a space to watch, discuss and review films created either by or about persons with disabilities.
- Workshops on art making experience and inclusive technology.

IN Series

We also explore these areas throughout **IN**. It is a series of public presentations, which promotes discussion and engagement on a wide variety of topics about Inclusion:

Disability, Accessibility, Health, Education, Culture and the Arts. People presenting are from a wide range of disciplines presenting in various public formats, and topics from the engaging, thought provoking and discussion oriented field of inclusivity. The case of ***Hack! Toys for Accessibility Workshop***, (2013) as an example. Playing with "off-the-shelf" toys is not possible for many children with physical disabilities. However, if a child can use their feet, arm, mouth, head or a part of their body consistently, then it is possible to add a switch to make the toy accessible without affecting the function - as the existing button will still operate as it was originally intended. This workshop taught families to adapt battery-operated toys to make them more accessible for children with disabilities through hands-on activities. ***Entirety - Inclusion in Education for all Children***, (2014) facilitated discussion and discourse among a range of people with experience and expertise involving education and children including, teachers, writers, parents, advocates, policymakers, researchers and professionals. The concept of *Entirety* was to bring together people with a common passion of accessibility and inclusion issues involving children ages 5-12 years old.

Workshops

Another example was a workshop and public forum called *Waking the Machines: Assistive Technologies and Prosthetic Agency*, led by artist Sara Hendren. The lecture opened up a broad canopy by which to understand art, assistive technologies, and performative prosthetics, and the workshop focus on the hidden, overlooked, deceptively simple technology of the inclined plane and its physics. Both delivered into a public discussion with multiple stakeholders. Questions were asked such as, What other kinds of work might a prosthetic do? Whose bodies need assistance, and why? How and when do assistive devices become performances, or modes of critical inquiry? Sara Hendren with the participants explored the engineering and the art-making at work in assistive and adaptive technologies—from the familiar to the very unusual—and raised questions about what's at stake for the future of prosthetics.

Another activity was *Disabling' the Museum: Curator as Infrastructural Activist*, by Amanda Cachia (2014). It was a lecture and workshop regarding how the curator might become an infrastructural activist in the museum for the benefit of disabled artists and audiences. In this workshop, Cachia worked with master students in thinking about how to shape an independent curatorial project so that it is accessible to multiple viewers, with or without disabilities.

AXS Mapathon

In 2014, we recruited and worked with teachers from the Toronto District School Board to enable secondary school students to participate in a Mapathon of downtown Toronto. This project included sourcing supportive tools such as mobile devices and measuring tapes from through private sector support as well as developing connections to the math

curriculum of accessibility features such as turning radiuses and ramp slopes. Students helped map accessibility in designated regions of Toronto using the AXS map web application and in doing so gained a greater understanding of accessibility and the extent of barriers still faced in day-to-day activities by people with disabilities.

Conclusion

When assessing projects that aim to integrate inclusive design and the arts, the IDRLab values collaborative working relationships that address inherent power imbalances between and amongst participants, and that use active engagement in the creative process and decision-making. This approach includes a quality of process and practice that cultivates opportunities for persons with disabilities to fully engage and have meaningful participation. The general forms and criteria of Co-Design Experience are:

1. Collaborative problem-solving (working formally and informally in teams).
2. Open sharing for the purposes of a common goal, challenging the concept of possessiveness regarding intellectual property.
3. Being attentive to the diversification of cultural expression.
4. Breaking down traditional forms of participation and socialization in order to empower the conception of citizenship and increase the public role of users as media makers and community participants.
5. Social skills that all designers and users of IDRLab need in this landscape.
6. Ensuring individual expressions and contributions can translate into community involvement.

The IDRLab wants to ensure diversity in arts and cultures. All the practices, in which designers explore the perspectives, embodiments, expressions, identities, languages, cultures, histories and lived experiences of persons with different abilities, will bring distinct perspectives and ways of being into the Inclusive Design, shifting perceptions and understandings of human diversity and artistic expression.

IDRC uses innovative participatory research methods that equalize the power in the research process and enable participants to help guide the research questions, process and interpretation of results. Accessible locations and materials enable the team to generate greater dialogue around inclusion and exclusion and explore inclusive creative and research methods.

Ultimately, this practice challenges academia to confront a chasm in the field of research where disabled persons are often considered as recipients of research rather than central decision makers in research creation.

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