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Resources Review

Adaptive (podcast), Montreal*in/accessible (mobile app), Accessible Arcade Tables (DIY project)

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Abstract

This resources review spotlights a variety of DIY (do-it yourself) innovative media projects. Examples of these projects include: a podcast series on adaptive technologies; building mobile applications that allow participants to publish images, text and sound recordings; an interactive map that documents disability discrimination in certain cities; and the DIY creation of accessible arcade tables. The social production of disability is seen in barriers created by society to restrict access to certain places or even certain cultural forms. The internet offers a space to share media productions and social media initiatives that use digital media to intervene, creatively, in the ableist assumptions embedded in life both on- and offline.

Keywords: *disabilities, mobile technology, critical disability studies, DIY media projects, social media, educational technology*

Over the past decade mobile technologies have become ubiquitous in the lives of youth, adults and seniors alike (boyd 2014; Tsai & Kaufman, 2009; Wolfson, Cavanagh, & Kraiger 2014; Sawchuk & Crow 2012). People have become dependent on this technology in their daily activities. Simultaneously, the internet has afforded a space where content and wisdom is freely available, thus enabling the dissemination of information and the sharing of experiences for communities of people living with disabilities. Content and resources created for minority groups (e.g. people living with disabilities) has traditionally been developed from a top-down approach, which positions the participant in the role of the consumer of knowledge...[instead] of the participant in the role of the producers of knowledge (Davidson, 2015). In response to this trend, people living

with disabilities are innovating and developing their own helpful digital resources and sharing them globally. Researchers have demonstrated the potential use of mobile technology to develop educational materials, such as self-advocacy videos, by people living with intellectual disabilities (Davidson, 2015). The goal of these innovators is to raise awareness of disabilities and to create tools, resources and content that target systemic barriers within a social model of disability.

Mobile technologies, in the context of this review, are technologies designed for the personal communication market. These technologies answer a vast spectrum of consumer needs that have both negative (Bowler, Knobel, & Mattern, 2015) and more positive implications for the wellbeing of their users (Spiro, Matias, & Monroy-Hernandez, 2016). These technologies have the capacity to amplify the worst and best human characteristics. Now more than ever, it is important to think critically about the impact of mobile technologies on our lives.

The purpose of this resource review is to report on three current online resources created by and for people with disabilities that serve to raise awareness of the issues that involve living with disabilities as well as improve the users' quality of life. The media projects discussed in this article were developed and designed as part of the Community and Differential Mobilities Research Cluster of the Milieux Institute for Arts, Culture and Technology at Concordia University (Montreal, Canada). I am a co-director of the Community and Differential Mobilities Research Cluster where we facilitate research-creation work concerned with issues of social justice and accessibility. The members of this cluster are active producers of varied, dynamic and participatory media forms. We have a shared interest in the visible and invisible webs that both enable and restrict different bodies in terms of space, social class, citizenship, employment, and many others. Technologies surrounding the questions of "differential" mobility (such as smartphones and other mobile media devices) are of central concern to the group. We explore the potential ways to use new production platforms and the multiple forms of constant connectivity they are embedded in. Lastly, and vitally, the cluster provides an accessible institutional home for the Critical Disability Studies Working Group at Concordia. This space includes a meeting room, digital production environment and shared office space for members, visiting scholars and postdoctoral researchers.

Three different media projects, reviewed below, showcase the National Association for Media Literacy's (NAMLE) Core Principles of Media Literacy Education (2007) by exploring innovative accessibility technologies. All three media projects require active inquiry and critical thinking about the way social and political structures cause physical and emotional accessibility barriers. Discursively, media messages have conditioned us to believe that bodies must be "fixed" in order to conform to normative social, political and physical spaces (Oliver & Campbell, 1998). NAMLE's second core principle expands the concept of media literacy to include various forms of non-traditional media. All three examples in this review break from traditional forms of media: one is a podcast series; the second is a interactive mapping program; and, the third example

utilizes tiny, affordable computers such as Arduino and Raspberry Pi microprocessors.

These three projects reflect NAMLE's devotion to creating informed citizens that are engaged in the issues of social policy, social justice, human rights issues, and social movements in both Canadian and international contexts. For example, the podcast series *Adaptive* informs its audience of the tension between ableism, diversity and technology. Whereas *Montreal*in/accessible*; and *DIY Accessible Arcade Tables* force its users to reconsider the relationship between human and technology integration. *Montreal*in/accessible* takes a conventional mapping application and flips it into an activist tool for accessibility rights, recognising that media can function as agents of change and socialisation that encourage citizens to become active in a democratic society. *DIY Accessible Arcade Tables* allows participants to explore individual skill sets in designing and developing gaming platforms that best suit their abilities and interests. All three media projects focus on the relationship between accessibility, media education and technology as agents of change.

The following section provides an overview of these three projects that promote a critical disability perspective and are grounded in NAMLE's core principles of media literacy education.

Adaptive: a Podcast Series About People, Assumptions and Adaptive Technology

Adaptive is a four-part podcast series about “the interaction between human ability and technology” (*Adaptive*, 2016, par.1). The series explores how people make assumptions about ability based on how they use tools and technologies to adapt to the environment around them. It was developed and created by Michelle Macklem, with Aimee Louw as the series editorial advisor. Figure 1 displays a screenshot of the episodic podcast series.

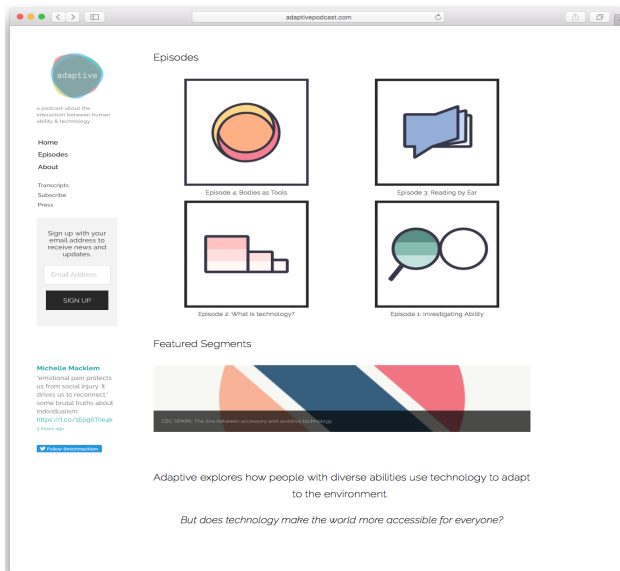


Figure 1. Screenshot of Adaptive website with list of episodes.

The first episode, *Investigating Ability*, (Adaptive Web, March 22, 2016) asks the question: how are ability and disability commonly defined? The episode examines how glasses have become a normal aid and fashion accessory, while canes and walkers are considered medical aids. Graham Pullin, a designer and research at the University of Dundee in Scotland and author of *Design Meets Disability*, considers how glasses are rarely thought of as medical appliances and how disabilities can provoke new direction in design fields. Next, Sara Hendren, professor and designer at Olin College in Boston, explains how glasses are used as modes of identity and style—that they function as a fashion statement instead of an actual medical tool. Last, we hear from Aimee Louw, a radio producer, writer and accessibility advocate, who discusses her personal experience of disability and how other people construct her identity.

The second episode, *What is Technology?* (Adaptive Web, April 5, 2016) asks questions regarding what we consider to be technology and what we do not see as technology. This episode features interviews with Owen Chapman, Professor in Communication Studies at Concordia University, and Alex Truesdall, founder of Adaptive Design Association in New York. The third episode, *Reading by Ear*, (Adaptive Web, April 20, 2016) explores reading by ear through Talking Books. In this episode, Macklem speaks with Mara Mills, Professor at New York University about her research on Talking Books and how it differs from commercial audio books. In the final episode, *Bodies as Tools*, (Adaptive Web, May 4, 2016), Macklem examines the blurred line between ability, body and technology and interviews Danielle Peers, Professor at University of Alberta, and Lindsay Eales artist and co-artistic director of the Collaborative Radically Integrated Performers Society in Edmonton (CRIPSIE). Macklem stated her reasoning for producing the podcast:

I recognized that conversations around disability and technology were largely relegated to inspirational narratives, particularly in radio and podcast mediums...*Adaptive* brings together the voices of people who experience disability and their allies in engineering, art and tech who are critically reflecting on the interactions between bodies and technology. (Macklem, M., personal communication, January 4, 2017)

One of the most important aspects of this project is that it dispels the deeply rooted inspiration narrative in the social discourse regarding disabilities. This narrative positions disabled people as overcoming obstacles and thus inspiring abled people. Adaptive serves as an example of an audio-based media project that increases our awareness of disabilities by starting a discussion about ableism and by urging the listener to think critically about who creates content and resources that serve people living with disabilities. Deciphering the purpose underneath the surface reading of messages, materials and resources is the basis of media literacy education. This podcast encourages us to understand the reciprocal influence of media and technology and disabilities. Why are glasses cool and canes and walkers uncool? The media often portrays stereotypes of

people wearing glasses that are hip, whereas canes and walkers are often associated with people with disabilities and/or seniors. These adaptive technologies serve the same purpose, which is to assist people, however media representation has skewed the image and allowed one assistive technology to be accepted while the other is regarded as undesirable. Adaptive advances media literacy education in the context of social discourse regarding disabilities by:

- moving beyond the “inspiration narrative” in disabilities.
- questioning how discussions about disabilities is included in formal and informal educational settings.
- demonstrating critical analysis of disabilities content created by mainstream media and questioning its hegemonic ableist narrative and its influences.

One approach to using Adaptive in the classroom is to use it as an example for students to learn how to produce podcasts and develop journalistic skills such as interviewing and audio editing. The students can practice interviewing each other in the classroom. When they are confident with their interview technique they can find a subject who uses adaptive technology such as a cane, walker, wheelchair or eyeglasses and record an actual interview. One creative approach would be to have them randomly draw an index card from a hat that has an adaptive technology written on it. For example, take ten index cards and write one adaptive technology on each. Fold the index cards, place them in a hat and ask each group of students to draw one. Once they select their index card with the adaptive technology, they need to brainstorm who they can interview that best suits the adaptive technology. To make this activity more collaborative, the teacher could begin with a discussion about adaptive technology and ask the students to generate examples of adaptive technologies. The teacher can then use that list to develop the index cards. After the students record the interview, they would edit and upload the podcast online.

One of the major challenges in using Adaptive in the classroom is the lack of exposure that most young students have to people with disabilities. Students are not the intended target audience for this program. Therefore, it may be difficult for students to generate examples of adaptive technology or it might be difficult for them to suggest interviewees. One approach to overcome this would be for the teacher to connect her class and students with a local seniors community centre. There the students could meet and interview the seniors and ask them about their experiences with adaptive technologies. These spaces offer opportunities and teachable moments for young students because seniors become demystified. The interaction between students and seniors could potentially eradicate misconceptions that all seniors require adaptive technologies in their lives and that adaptive technology diminishes their quality of life.

Montreal*in/accessible: Mapping for Accessibility

Montreal*in/accessible is a mobile app that allows participants to publish images, text and sound recordings to a map that documents disability

discrimination in the city of Montréal, Canada. Figure 2 shows a screenshot of the mobile app. This application was developed by Barcelona-based artist Antoni Abad with the assistance of Kim Sawchuk and Laurence Parent as the Montréal project directors. The app was originally developed by Abad for the Megafone project which assists marginalized groups to express their experiences by creating audio recordings, video, text, and images. This content is then published on an interactive map powered by Google. The app transforms the user's mobile device into a megaphone that increases awareness of disability issues and leads to transformative action.

*Montreal*in/accessible* is one of thirteen projects globally that uses the Megafone platform since it was developed in 2012. The Megafone app “visualizes the patterns of systemic discrimination against people with disabilities and physical impairments that have become rooted in Montréal's urban landscape” (MONTRÉAL*in/accessible, 2004, par.1). This project calls attention to the lack of access, as well as the challenges and political indifference that face people living with disabilities in Montréal. These barriers include a limited accessible subway system and major problems with accessible public buildings. Laurence Parent explained that they created this project “to document the obstacles in the city because we knew that Montréal is quite inaccessible to many disabled people but we did not have a tool to document these obstacles” (Parent, L., personal communication, January 4, 2017)

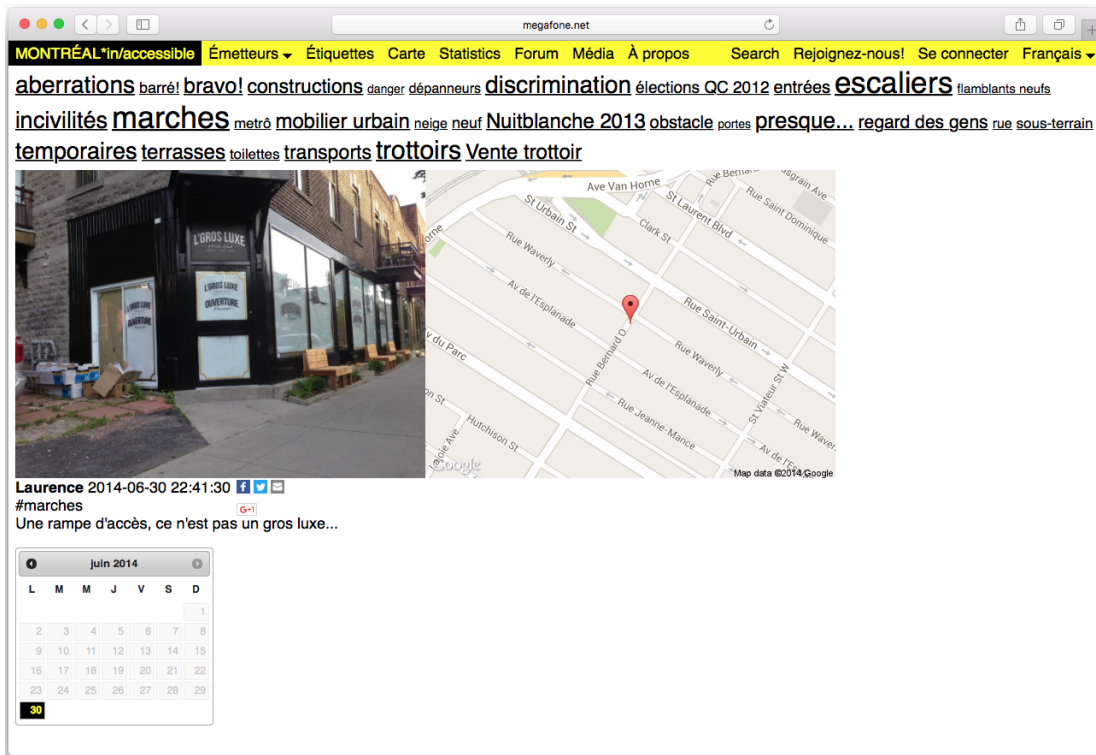


Figure 2. Screenshot of Montreal*in/accessible website with tag cloud.

*Montreal*in/accessible* asks users to document inaccessible locations in Montréal by taking a photograph and adding it to the interactive map. Users generate their own keyword or tagging organisation to online content, a practice known as folksonomy. Tags such as construction, danger, discrimination, inconsideration, stairs, steps, street furniture are some of the most popular examples. The size of the tag cloud text determines its popularity--the larger the word in the tag cloud the more times the item has been tagged. For example, the most popular tags on the website at the moment are: stairs, steps, and pavement. The content of this application and website is generated by collective intelligence and collaborative effort. Not all users are people with disabilities: this is important because it allows able-bodied users to have a heightened awareness as they navigate the city and understand how something that requires no effort for them is a barrier to other people.

One way to integrate *Montreal*in/accessible* in the classroom would be to use the app to teach young students basic mapping skills. For example, have them draw a map of their trip from home to school using paper and pencil, Google Maps or OpenStreetMaps. Once they draw their map, ask them to think about any potential barriers they would face if they were to commute to school using a wheelchair. Ask students to think what it would be like to face physical barriers such as stairways, high sidewalks, potholes, fences, or construction barriers if they were in a wheelchair. The next step would be to take the class outside and have them walk a few blocks around the school and have them take photographs of what they believe could be a potential barrier to someone like Laurence Parent who uses a motorised wheelchair. Once they finish collecting their “barrier evidence” have them design and develop a digital photovoice project about their experience and the barriers they found. Photovoice is a creative method to tell a story or make a statement using a series of photographs the author takes themselves (Umurungi, Mitchell, Gervais, Ubalijoro, & V. Kabarenzi, 2008). You could use online programs like Voicethread.com or else print the photos and create a paper-based photovoice project.

There may be challenges to using *Montreal*in/accessible* in the classroom. Similar to the previous example, several students will have likely had minimal exposure to people with reduced mobility. Furthermore, most able-bodied people will have very limited experience understanding what a physical barrier could be. What may appear to an able-bodied person, as a slightest elevation on a sidewalk, may be the greatest barrier to someone with reduced mobility. One method to avoid this would be to invite people with reduced mobility to walk with the students on their outing and they could help identify potential barriers and provided a greater context.

Accessible Arcade Tables: At the Intersection of Maker Culture and Disabilities

Accessibility Challenge is a DIY project to create arcade tables using a Raspberry Pi microprocessor and Ikea Lack table grounded in the concept of maker culture. Figure 3 provides a photograph of such a table. At Concordia, participants collaboratively designed and developed a small arcade table that is

accessible for people with limited mobility. Led by Ann-Louise Davidson and in collaboration with a group of graduate students and myself, this project facilitates a space where youth can tinker with small and affordable technologies to create various projects. Davidson explains that at the end of a project “everybody stops what they are doing and watches their fellow maker experience the satisfaction of weeks, or months, of hard work and persistent problem-solving in an error-tolerant environment.” (par.5).



Figure 3. Accessible Arcade Table.

Anderson (2015) referred to digital “makers” as participants in a do-it-yourself (DIY) culture of “open” digital production using tiny, cheap, open-source computers, such as Raspberry Pi and Arduino, with sensors, motors, and data sharing over networks. Traditional arcade tables have historically been designed for able bodies; they require users to stand and have fully functional limbs in order to engage with game controls. This project fosters inclusivity in the gamer experience by designing and developing a series of accessible tables made by and for people with various disabilities. The first set of tables was designed and developed in a community centre specifically for young users. Working with experts to create the tables, the second set will be designed and developed for users with Parkinson's. The goal of this project is bringing together a group of people who are interested in maker culture, gaming, accessibility and problem-solving.

The best way to integrate *Accessible Arcade Tables* in a classroom would be to ask the students to build a prototype table. Have the students design a table using a pencil and paper and then ask them to create a model out of cardboard. Once the cardboard model is ready they can connect the hardware and monitor. If this is too challenging an alternative task would be to ask the students to sketch out an accessible table on a poster board. Ask them who they would like to design an arcade table for and why. Then ask them to draw and provide details about the design choices they make for accessibility. Once they have finished designing the accessible arcade table they can share their project with the rest of the class. You

can take this one step further and ask them to show their design to someone with reduced mobility and ask them to provide their feedback on the design choices.

The main challenge with this project could be the lack of technical skills required for the Raspberry Pi programming and assembling other components of the table. However, there is a vibrant online community that is able to assist with video guides and communities of practice that provide information and prompt answers. Another way to deal with the technical issues would be for the classroom and students to team up with a local maker space. This would expose the students to other makers and provide the necessary guidance and support to complete the projects.

The Importance of Design Projects for People with Disabilities

The three examples presented in this article offer insight and provide innovative and creative ways to engage with disabilities and promote media literacy education. All three examples have been designed and developed to break social barriers that exclude or discriminate against people with disabilities. At its root, media literacy education is about thinking critically about messages that we receive and create. However, media literacy education is more than just critical analysis. According to Hobbs (2010) there are five essential competencies of digital and media literacy. One must first access media and technology and understand how to appropriately share relevant information. Next, we must analyze and evaluate messages and question their credibility and consequences. The following three competencies: create, reflect, and act all involve a certain level of creativity, self-expression, ethical consideration, and application.

Adaptive, Montreal*in/accessible and Accessible Arcade Tables challenge us to pay close attention to disabilities while we think critically about the media we consume and the messages we are exposed to. By engaging with emergent technologies such as podcasts, mapping and maker culture we encourage people to use their skills, competencies and abilities to create, reflect, deconstruct, recreate and be analytical about the process and its outcomes. A mobile device on its own means nothing. A mobile device being used by a person with limited mobility becomes a tool that helps navigate and provide timely feedback on city barriers. As we engage with emergent technologies and practices we must remember that they are not always available to everyone. Inclusivity and accessibility are extremely important and the discussion about disabilities is a starting point in the process of creating a more aware and inclusive society. The internet offers a space to share media projects, content and social media initiatives that intervene, creatively, in the ableist assumptions embedded in life both on and offline.

References

- Adaptive. Web. (2016). Retrieved from <http://adaptivepodcast.com/>
- Anderson, P. (2015). *Digital Fabrication and Open Concepts: An emergent paradigm of consumer electronics production*. (BS Thesis in Informatics). Umeå, Sweden: Umeå University. Retrieved from:

<https://pdfs.semanticscholar.org/84d0/4dd33fc38df07aa032cdc07504bda91663a2.pdf>

- Bowler, L., Knobel, C., & Mattern, E. (2015). From cyberbullying to well-being: A narrative-based participatory approach to values-oriented design for social media. *Journal of the Association for Information Science and Technology*, 66(6), 1274-1293. <https://doi.org/10.1002/asi.23270>
- boyd, D. (2014). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.
- Davidson, A.L., (2015). A collaborative action research about making self-advocacy videos with people with intellectual disabilities. *Social Inclusion*, 3(6), 16-28. <https://doi.org/10.17645/si.v3i6.412>
- Hobbs, R. (2010). *Digital and media literacy: A plan of action*. (White Paper). Washington, DC: The Aspen Institute.
- MONTRÉAL*in/accessible. (2004). *megafone.net*. Montreal, QC: Concordia University. Retrieved from <http://megafone.net/montreal/about>
<http://mia.mobilities.ca/montrealinaccessible/>
- National Association for Media Literacy Education. (NAMLE). (2007). *Core principles of media literacy education in the United States*. Retrieved from <https://namle.net/publications/core-principles/>
- Oliver, M., & Campbell, J. (1998). *Disability politics: Understanding our past, changing our future*. London, UK: Routledge.
- Sawchuk, K., & Crow, B. (2012). "I'm G-Mom on the Phone" Remote grandmothering, cell phones and inter-generational dis/connections. *Feminist Media Studies*, 12(4), 496-505. <https://doi.org/10.1080/14680777.2012.741863>
- Spiro, E. S., Matias, J. N., & Monroy-Hernández, A. (2016). Networks of Gratitude: Structures of Thanks and User Expectations in Workplace Appreciation Systems. *arXiv preprint arXiv:1605.08484*.
- Tsai, YF. L., & Kaufman, D. M. (2009). The socioemotional effects of a computer-simulated animal on children's empathy and humane attitudes. *Journal of Educational Computing Research*, 41(1), 103-122. <https://doi.org/10.2190/EC.41.1.e>
- Umurungi, J., Mitchell, C., Gervais, M., Ubalijoro, E., & Kabarenzi, V. (2008). Photovoice as a methodological tool to Address HIV and AIDS and gender violence amongst girls on the street in Rwanda. *Journal of Psychology in Africa*, 18(3), 413-419.
- Wolfson, N. E., Cavanagh, T. M., & Kraiger, K. (2014). Older adults and technology-based instruction: Optimizing learning outcomes and transfer. *Academy of Management Learning & Education*, 13(1), 26-44. <https://doi.org/10.5465/amle.2012.0056>