Living with Disabilities

There are numerous kinds of disability, some visible and some invisible. Consider the ones below. What challenges might people with these disabilities face?

Difficulty with...	*Challenges in work or daily life*
Sight	
Hearing	
Mobility	
Controlling Emotions	
Dexterity	
Learning	
Memory	
Speaking	

If you have never had a disability, how would your life be different if you had one of these?

If you do have a disability, how would your life be different if you didn't?

_____

_____

_____

_____

_____

_____

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Building Vocabulary

Choose the best synonym for each word.

1. **impaired**   a. limited   b. developed   c. quick
2. **beacon**   a. meat   b. signal   c. reason
3. **queue**   a. call   b. line up   c. draw
4. **initial**   a. first   b. short   c. deep
5. **layer**   a. bottom   b. coating   c. leftover
6. **consumer**   a. creator   b. seller   c. user
7. **transit**   a. growth   b. travel   c. communication
8. **reliable**   a. dependable   b. advanced   c. understandable
9. **robust**   a. loud   b. sick   c. strong
10. **potential**   a. active   b. missed   c. possible

Before you read

Here are three ideas to help people who are blind. How can they make life easier? What are some limitations that each one might have?
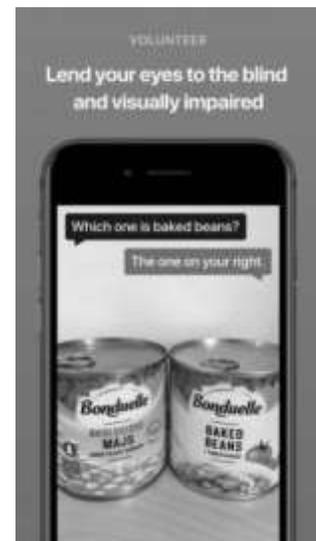

Elevator button up (Kiran Foster/Flickr)

Truncated Domes (J. smith/English Wikipedia)

Be My Eyes app promotional screencap (iTunes)

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Reading for main ideas

Read the article "4 New Ideas for Helping the Blind Get Around Cities." Match each place to the technology for improving access for the blind.

Warsaw, Poland   an efficient public transportation system

Japan   an earpiece that makes a sound if objects are near

Nigeria   an app for getting directions

Denver, USA   maps that can be read with fingers

Reading for details

Read the article again and circle the correct phrase.

Ex: People who are (visually impaired) / living in poverty often use a GPS device.

1. A new app in Poland can signal the user when it nears a specific place / it nears danger.
2. App users explained that directions with right and left / clock numbers were more useful.
3. 3D maps in Japan are similar to raised dots on a page / software that reads a page.
4. 3D maps can be made with grant money / home printers.
5. Ultrasound devices in Nigeria receive a signal from the shoe / the walking cane.
6. The ultrasound earpiece is ready / not ready for consumers.
7. Denver's FasTrack system has reliable drivers / timetables.
8. FasTrack uses location tracking to count the riders each day / announce the next stop.

After you read

Discuss these questions with a partner.

1. Warsaw hopes that the new app will also be useful for others in the city. How could this app help people who are not blind?

2. Why is cost a major challenge for making 3D maps?

3. If you had a visual impairment, would you rather use a walking cane, a sight dog, or an ultrasound device?

4. Think about public transportation in your city. Is it reliable? Is it accessible for everyone?

4 New Ideas for Helping the Blind Get Around Cities

Adapted from: Chua, Grace. (2016, Jan 14). 4 ideas from 4 continents: Helping the blind navigate cities. Retrieved from http://citiscope.org/story/2016/4-ideas-4-continents-helping-blind-navigate-cities

Getting around a busy city can be stressful for anyone, but it is especially a challenge for the blind and visually impaired. New technologies are helping, however — along with new thinking among some city leaders.

Warsaw, Poland: Beacons show the way

People who are visually impaired often use talking GPS devices or smartphone apps to get around a city. But GPS won't tell you exactly where a bus stop is — and it doesn't work inside buildings, where GPS signals don't penetrate. Finding one's way in a city hall or municipal services office is especially difficult, with all the information counters and queues.

The city of Warsaw aims to change that. It's currently installing small location-marking beacons at bus stops, and inside municipal offices and public buildings. These beacons broadcast to a smartphone app that make the phone vibrate, and even notify the driver when a rider's bus stop is coming up. Warsaw is getting funding from the European Union to scale up. In the next three years, the city will install up to a million beacons.

While the beacon technology is becoming more widespread, app design is especially important for the blind, explains Krystian Cieslak, chief marketing officer at the Polish startup that developed the program. For instance, an initial version of the smartphone app told users to go forward, back, right or left. But user-testing revealed that giving 'clock' directions such as 'three o'clock' was more useful. App users make Tinder-like swipes to the left and right to select options, so they don't have to see which buttons to press.

But Rafal Kanarek, of the Polish Association of the Blind, says he's too impatient to wait for talking smartphone applications, or GPS signals. "Nothing will replace human beings," he says. "And although I do really appreciate new inventions and modern technologies, one should use his or her common sense while using them."

Japan: 3D maps for the blind

People who are blind or visually impaired have long used the raised dots of braille to read with their fingertips. And special printers can produce textured maps and even architectural diagrams for the blind. Now, 3D printing, in which plastic is deposited layer by layer to build up figures, can open up whole new vistas.

In 2014, Japan's Geospatial Information Authority (GSI) released a software program that can turn create 3D-printed tactile maps for any location in the country. The maps raise roads, railways, and walkways, about one millimeter high. A visually impaired person could use a printout of a certain neighborhood to develop a mental picture of it before venturing out.

Consumer access to this technology remains a hurdle, however. While the cost of a basic home 3D printer is dropping, it can still cost upwards of US$600. The materials needed to print a 6-inch-square map cost about 150 yen, or US$1.27, the Asahi Shimbun reports.

While it's not clear if the 3D maps are widely used by visually impaired people, the GSI said in an email that it is working with universities and organizations for the blind to test and refine its program.

3D printed city maps put roads and walkways into sharp relief. (Geospatial Information Agency of Japan)

Nigeria: Ultrasound guides

Apps and maps are about helping people with sight loss find their way to things. But in urban settings, detecting and avoiding obstacles is another challenge, one often managed with walking sticks or guide dogs. Researchers in Nigeria are working on a wearable device they hope can do better.

Engineers and medical researchers at Obafemi Awolowo University in the Nigerian city of Ife-Ife developed the two-part device. One part is worn on the shoe and uses a small 9-volt battery; another is an earpiece. The shoe unit emits and receives ultrasonic chirps that the earpiece translates into beeps; the closer an obstacle, the higher the pitch.

Their setup gets around the limitations of other common tools, they explain. A cane or walking stick only finds obstacles within its reach. A guide dog leaves only one hand free.

The device under development in Nigeria isn't quite market-worthy yet — it needs to be improved to sense drop-offs, holes, and stairs, says Abimbola Jubril, the study's lead author. But the device has been tested at a school for the blind in Lagos, Jubril adds. "We have not been able to commercialize it, but are still working to add other features."

Denver, USA: Transit for all

While all the technological advances are interesting, many advocates say there is nothing more important cities can do to help the blind get around than to get the basics right by investing in a robust and reliable network of public transportation.

That's what Denver, in the Western United States, has been doing for more than a decade. In 2004, voters in the car-centric city decided on a US$4.7 billion transit expansion, funded in part by increased sales taxes. The growing FasTracks system includes new commuter-rail and light-rail lines, bus-rapid transit, and park-and-ride spaces at light rail and bus stations.

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"I'm kind of a fixed-route girl," says Claudia Folska, a board member for the Denver Regional Transportation District, who is blind. Folska says reliable transit timetables are essential for a blind person's meticulous planning process. She knows all her destinations for the day — when she has to get places, how she'll get back, and often arranges a carpool with colleagues. "Sometimes I ride with people to the light rail, and that's the best — there's no traffic on light rail."

(Arina P Habich / Shutterstock.com)

Since 2003, the transit agency has had a free travel-training program that teaches older adults and those with disabilities how to get around on public transit independently. In 2013, the RTD added automated bus-stop announcements that tell bus riders when the next stop is coming up, based on real-time location tracking.

When a city takes pains to accommodate people with sight loss, Folska says, it becomes better for everyone. "It becomes more reliable, and safe, and consistent, and predictable," she says. "Everybody has the ability to live to their full potential."

Critical thinking

Your city has received grant money to improve access for the visually impaired. Choose one of these four ideas. Explain why it is the best one for your city.

Vocabulary

Listen and write the words that you hear in the table.

	Word	Pronunciation	Meaning	Part of Speech & Word Family
Ex	sustainable	sus-**tain**-a-ble	able to continue	(adj) sustaina**bi**lity (v) sus**tain**
1				
2				
3				
4				
5				
6				
7				

Find classmates who know the pronunciation, meaning, and word family for these words.

Before you listen

Watch the video segment and discuss these questions with your partner.

What is the woman doing?

Have you ever done something similar?

Would you like to try this?

Austin, S. (2012). Deep sea diving … in a wheelchair [Video file]. Retrieved from
https://www.ted.com/talks/sue_austin_deep_sea_diving_in_a_wheelchair

Listening for main idea

Watch the video and find the incorrect word in each sentence. Correct it.

Ex: Sue Austin has a ~~cane~~. *wheelchair*

1. Sue Austin's first experiences in the wheelchair were terrible.

2. Austin started making movies to express herself.

3. Seeing an animal in the water can make people think about it differently.

Listening for details

Match the beginning of the sentence with the correct ending.

1. Austin began to use a wheelchair   interested and surprised.
2. People's initial responses to Austin were the way people think about her.
3. People's response to Austin's art was   after an illness affected her mobility.
4. Austin wants to transform   because it opened new opportunities.
5. Both wheelchairs and scuba gear can   negative words like "fear" and "restriction."
6. She calls the chair "Portal"   allow people to go somewhere they couldn't.

After you listen

Here are 2 quotes from Sue Austin's TedTalk. Explain what it means in your own words and answer one of these questions:

Do you agree or disagree with her? Why?
What similar experience do you know about?

"It showed that an arts practice can remake one's identity and transform preconceptions by revisioning the familiar."

"Because nobody's seen or heard of an underwater wheelchair before, and creating this spectacle is about creating new ways of seeing, being and knowing, now you have this concept in your mind."

Critical thinking

In the TedTalk, Austin explained how she **repurposed** her wheelchair. What does this mean?

Look in your bag and find something that you can use in a new way. Explain to your partner how it can be repurposed.

With your group, choose a type of disability and think about a new technology or system that could improve access for people with that disability. Create a proposal to give to potential investors.

A good proposal includes the 4 P's:

- **Problem**: Describe the problem facing a certain population. (ex: GPS guide systems do not work in buildings.)
- **Proposed Solution**: Explain how your idea is the best solution to this problem.
- **Plan**: Give a detailed plan for your project, as best as you can. Include an explanation of what technology you will use to make your product, how long the project will take, what staff you need, the steps or techniques, etc.
- **Price**: Look at other similar projects and try to decide how much money you will need

Bring your proposal to class on the due date. Your instructor will choose the best project in the class to award funding.

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