

# Introduction to Inclusive Design

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# Redefining “disability”

**disability** noun  
[dis-uh-bil-i-tee]

1. A *mismatch* between the needs of the user, the environment, and experience offered.
2. *Not* a personal trait.
3. A condition that *changes* with their context - it is *relative* to the individual and their environment.



**Design can solve a mismatch.**

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Most of us are familiar with the clinical definition of “disability”, which says that an individual *has or possesses* a limitation that prevents them from functioning “normally”. If you go to a doctor and ask them what is a disability, they will tell you that it’s a condition of the patient, and that the patient needs a prescription in order to function. If you go to a teacher and ask them what is a disability, they will tell you that it’s a condition of the student, and that the student needs aids in order to learn.

In inclusive design the word “disability” is defined a bit differently. We see disability as a gap, or mismatch, between the needs of the individual and their environment. It is not a personal trait. And it is a condition that changes with their context and environment.

Therefore a disability is relative - relative to their environment, time of day, whether or not they are on a construction site wearing hearing protection, or at home watching a movie with a sleeping baby in the next room. Everyone experiences mismatches in some form because of their environment - how well they cope in such situations depends on the tools they have.

A good design can bridge the gap between a person and their environment. How does Inclusive Design fit into this?

# “One-Size fits One” Benefits Everyone

Solving the mismatch - 3 guiding principles of Inclusive Design:

1. recognize diversity and uniqueness
2. use an inclusive process and tools
3. have a broader beneficial impact

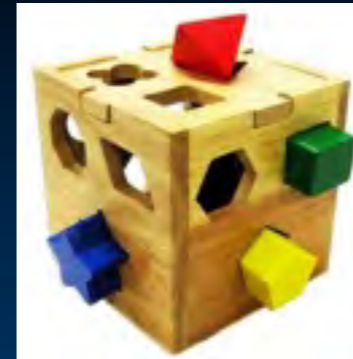
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In inclusive design, there are 3 guiding principles.

1. Everyone is unique - there is no such thing as a “typical” person.
2. Use inclusive processes and tools.
3. Aim for a broader beneficial impact.

This leads us to create a solutions that are flexible, and personalizable.

# Inclusive Design: Beyond Accessibility



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When I was a student, I loved sitting at the back of the classroom. I was a pretty shy student, so instead of raising my hand to ask a question, I had my little group of friends to whom I would talk to. Then my eyesight started to change - it was getting harder for me to see what the teacher was doing at the front of the class.

So what does the teacher do? Any guesses? She did exactly what most other teachers would do - moved me to the front of the class.

This was the most accessible solution - I can now see the chalk board. But it wasn't the most *inclusive* solution. I was no longer sitting with my friends who support me. I was no longer feeling relaxed and attentive in class. I was now sitting next to girls - what a distraction! A more inclusive solution would have been for the teacher to write bigger on the chalk board, describe orally what is happening in more detail, or give notes ahead of time so we can follow along. These things would have benefitted the ENTIRE class, not just a single individual like me.

We are looking to do something similar in the software world - inclusive design aims to go beyond accessibility with broader benefits for everyone.

# How do we do this?

- Understand the environment or *contexts*.
- Make *use case scenarios*.
- Solve for the *mismatch* cases, do some *gentle* prototypes.

Involve  
your users.

Non-linear  
iterations.

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How do we do this? We seek to understand the environment and the context of our users by talking to them, and by examining the environments where they work. We make use case scenarios based on what we learn with users. These use case scenarios help us concretely document their needs and their mismatch. We begin molding a solution to bridge the mismatches between our users and their environments. With the help of our users along the way, we gently prototype.

At the IDRC, we follow a similar methodology, but we approach it in non-linear ways. Spending extra time on the difficult issues, and pursuing opportunities and challenges as they present themselves.

# Use Case Scenario

## Example: Tessa

- 43 years old, mother of two boys, ages 12 and 14 years old.
- Local high school physics teacher with 4 years of experience.
- Loves gardening so much that it is causing her lower back pain. She can not remain in one position too long without suffering discomfort.
- Her boys have 2 hour baseball practice 5 days a week. These practices are the only free time she has during the week. She tries to use this time to run errands, or do some exercise.
- Tessa has been asked to teach Calculus next year and was provided with information on using EdReady. She hopes that she can find time in her schedule to re-learn Calculus and get familiar with the EdReady system.
- Tessa also has a dog named Nacho. Nacho is a crazy ball of energy. She wishes the boys could at least help look after the dog.

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With Tessa, we are starting to understand a person and little about her situation. You get the feeling that Tessa could be a bit busy, and that she has some free time. But that free time has competing priorities.

# Tessa: More questions...

- How does she prioritize and plan her time?
- What device will she be using?
- What is it like at the baseball diamond?



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There are a lot of other interesting questions which we don't answer here: How does Tessa plan her day? Will she be using her phone or a laptop to access EdReady? Will she have a chair to sit on, or will it be a bench or even the ground? Is there covering from the sun or rain? Is it noisy? Is it distracting? Does she take the dog to the baseball diamond? How will she access the Internet? How do you think she is going to cope with using EdReady for the first time?

# Make a Use Case Scenario (part 1 of 2)

- Try it:  
Who are EdReady's "Adult Learners"?
- Give them a name.
- Who are they?  
What are their likes and dislikes?  
What is their typical day?  
What motivates them?  
What is their context?

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Now it your turn to make a use case scenario - come up with a person whom you would describe as EdReady's "adult learner".

Give them a name, and then start giving them some details.

Split up into groups of 5 or 6. Take 5 to 10 minutes to work on this.



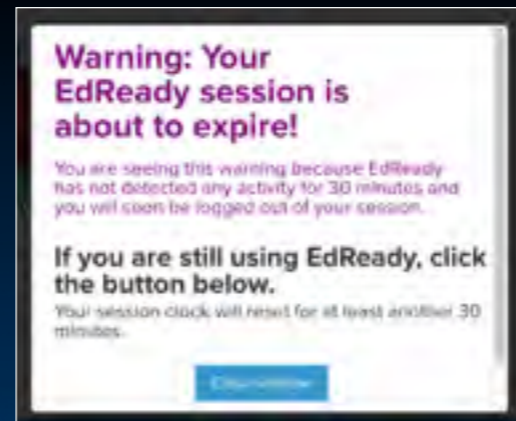
# User States and Contexts: Tessa at the Baseball Diamond



The user states and contexts is a tool we developed at the IDRC to help us visualize and understand our users like how I did of Tessa at the baseball practice.

Take some time now to complete it for your use case, and then let's talk about our people.

# Make a Use Case Scenario (part 2 of 2)



- Example: What does Tessa do when she encounters EdReady's Auto Logout Dialog? How would she react?

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Now let's go back to Tessa. How would she react when she sees the auto logout dialog on EdReady? With the User States and Contexts diagram I drew for her, we can make a fairly good prediction.

# Make a Use Case Scenario (part 2)

- Try it:  
With the person you created, add a scenario of them using EdReady. What happens?
- Ideas?
  - Doing an assessments
  - Navigating and generating reports
  - Learning Math (text, numbers, videos, assessments)

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Now with the person you made - give them a scenario. Perhaps they are taking an assessment, generating a report, or maybe watching a video on EdReady. How does your person react to their task?

# Solve for the Mismatch

- Example:  
How can we change the Auto Log Out dialog to work better for someone like Tessa?
- Try it:  
How do we solve the mismatch in your use case?

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Let's go back to Tessa - how do improve the auto logout dialog for someone like her?

Possible ideas: reduce the amount of text - make instructions clear, have an option to disable auto log out, silently time out session and require a login when a link / button is clicked (like Amazon), or "lock" the screen and require password for account to resume (like a screen saver).

For your use case scenario, how can you solve the mismatch for your user, and improve the experience?

# “Accessibility” with Inclusive Design?

- Example: Auto Log Out dialog
  - 2.2.1 - Time Adjustable
  - 2.2.3 - No Timing
  - 2.2.4 - Interruptions
  - 2.2.5 - Re-authenticating
  - 2.4.3 - Focus Order

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Up to this point we've been talking about “inclusive design”... what about “accessibility”? In our scenario with Tessa and the auto logout dialog, these WCAG 2.0 criteria could be satisfied depending on the solution for the auto logout feature.

With inclusive design you can achieve a high level of robustness, AND meet accessibility requirements.

# How do we do this?

(what we have done so far)

- Understand the environment or *contexts*.
- Make *use case scenarios*.
- Solve for the *mismatch* cases, do some *gentle* prototypes.

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Non-linear  
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So we come back to this slide we saw earlier - what have we done so far?

We've gained an understanding of the user's context, created some use case scenarios, and started thinking about some solutions.

Where do we go from here? We can validate our understanding and solution by bringing in users to participate in the process. We could collaborate with users to start doing some early prototype sketches, but gently so you don't get too invested.

You'll end up going through a few iterations, but hopefully you will start to see a good inclusive design taking shape.

# “One size fits one”



## If “disability” is

a mismatch

not a personal trait

relative and happens to everyone

## Then shift perspective

recognize diversity and uniqueness

use an inclusive process and tools

have a broader beneficial impact

## Do

understand user states and contexts

involve users as co-designers

have open and transparent processes

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We are coming to the end of the presentation. I wanted to bring us back to where we started with the definition of “disability”.

If disability is a mismatch, is not a personal trait, is relative, and happens to everyone

then we should shift our perspective and see that diversity and uniqueness is everywhere, and that by using inclusive processes and tools we can have a broader beneficial impact.

To do this, we went through an exercise where you started the process of creating an inclusive solution. You created a use case, considered their contexts, and then started to think of a solution. The missing part to all of this is that we don’t have real users in this room to help us refine the designs and solutions.

# Thank you.

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I hope this gives you an idea of how to start bringing in some inclusive practices into your process.

We have an IRC chat room for inclusive design and development - there you can find developers, designers, and community members of all backgrounds and disciplines. Please join us any time in that room - we'd love to hear ideas and help in practical ways.

You can also subscribe to our mailing list or email me directly.



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