Setting Accessibility in Motion at Peloton

Be Birchall, Oliver Warfield, Glenda Sims
Getting Acquainted

Be Birchall
She/Her
Engineering Manager + A11y Engineering Lead at Peloton

Oliver Warfield
He/Him
Senior Product Manager, Accessibility + Inclusion at Peloton

Glenda Sims
She/Her
Team A11y Lead at Deque
Today’s Takeaways

- Involving people with disabilities has a large positive impact
- Designing “Equivalent Experience” requires creativity, especially when there’s lots of visual data
- Inclusive Design and retrofitting can coexist
What is Peloton?
Peloton Digital Products

Digital App with Instructed Content

Peloton Bike and Bike+

Peloton Tread
Fitness & A11Y are a journey not a destination
Today’s talk will focus on screen reader for our connected fitness equipment, but our commitment to accessibility goes much further...
## Efforts beyond Bike & Tread screen readers

| Software                                         | Hardware                                                       | Content                                                      |
|--------------------------------------------------|                                                               |                                                              |
| ● Subtitles for live and on-demand classes       | ● Inclusion requirements when defining new products that translate into including diverse perspectives throughout design and research | ● Logan Aldridge is leading the strategic adaptive fitness programming development |
| ● Bike+ Auto-resistance follow                   | ● Touch target sizes                                          |                                                              |
| ● Target metrics zones                           | ● Web + mobile accessibility                                  |                                                              |
| ● Touch target sizes                             |                                                               |                                                              |
| ● Web + mobile accessibility                     |                                                               |                                                              |
Making the Peloton Bike Accessible

For Blind and Low Vision Members
ACCESSIBILITY AT PELOTON

Our Commitment

Peloton is committed to providing the best, most immersive, and accessible experience for our Members. Everyone has different fitness abilities and ambitions, and we strive to provide a variety of classes and content that allows all our Members to reach their personal goals. Our core values are putting our Members first and empowering people to be the best version of themselves, and we want that to be inclusive of the abilities of all our Members.
Approach: Community Input + Testing
The Challenge

Bike Accessibility for Screen Reader Users

Accessibility + Exercise

- Cognitive Load
  - Brain focused on workout
  - Competing Inputs
    - Instructor
    - Music
    - Metrics

- Unusually Large Touchscreen
- Dedicated Android/Talkback Tablet
  - Not an app on a device you already use with a screen reader
Defining Goals

- Define scope of research with
  - American Council of the Blind
  - Peloton Members

- Focus on Bike/Bike+
  - Seated Exercise First

- Use Key Features Independently

- Feedback Loops with Community

Key Features Include:

- Turn on/adjust TalkBack Settings
- Browse and Select a Class
- Take a Class
- Check Metrics
  - Cadence (how fast)
  - Resistance (how hard to pedal)
  - Output (how much work/effort)
Demo

Initial Launch (2020)

Using TalkBack to
● Find a Class
● Start a Class

Think about
● What could be easier?
Unique Accessibility Usability Study

- Recruiting people with disabilities that already use the Bike
- Usability testing during the early months of the pandemic
- Remote Testing Challenge
  - getting camera on zoom call set up when participant has no light perception
- Cognitive Load
  - Accessibility + Exercise
  - Competing audio: instructor, music, screen reader, test participant talking, moderator talking
Surprising Insights

Bike Accessibility for Members with Blindness or Low Vision

Legally Blind (20/200) not as meaningful as expected
- 20/30
- 20/100
- 20/200
- 20/400
- 20/1600
- 1 degree of visual field

Success/Fail Rates on tasks analyzed by:
- **Primarily used vision.** Used TalkBack as a supplement.
- **No usable vision.** Depend on TalkBack.
<table>
<thead>
<tr>
<th>#</th>
<th>Task Description</th>
<th>Overall Usability</th>
<th>LV to 1% vision</th>
<th>Blind</th>
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<tbody>
<tr>
<td>1</td>
<td>Take a class (start a class)</td>
<td>0.3</td>
<td>0.5</td>
<td>0</td>
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<tr>
<td>2</td>
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<td>0.5</td>
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<td>0.75</td>
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<td>0.6</td>
<td>0.33</td>
<td>1</td>
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<td>5</td>
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<td>0.7</td>
<td>0.33</td>
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<tr>
<td>6</td>
<td>Take a class (start a class)</td>
<td>0.7</td>
<td>1</td>
<td>0.25</td>
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<tr>
<td>7</td>
<td>Check Metrics (experimental)</td>
<td>1</td>
<td>0.6</td>
<td>1.67</td>
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<td>10</td>
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<td>1.25</td>
<td>0.5</td>
<td>2</td>
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<tr>
<td>11</td>
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<td>1.8</td>
<td>1.67</td>
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<td>12</td>
<td>Check Metrics (basic)</td>
<td>2.75</td>
<td>3</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Usability Rating Scale**

0 - Zero difficulty (zero frustration)
1 - Minor problems (little frustration)
2 - Medium to high frustration
3 - Point of failure
Improving Usability

Example 1: Starting a Class

Example 2: Reading Metrics
Equivalent Experience: Starting a Class
Autofocus Start Button
Equivalent Experience: Reading Metrics

"Output 236 watts, Average 217 watts, Best 238 watts"
Visual user...

- Can **easily** read metrics when interested
- Can ignore metrics
- Can collapse/hide metrics

TalkBack user...

- Hears metrics automatically read out at 90 second intervals
- Can tap to hear metrics
- Can collapse/hide metrics auto read
I love it. Because it is a game changer. It means that the whole reason I ride is it is the one exercise I can do independently. Right. And now, I can even set up my ride independently. So, it’s huge.

– Natelie W., Blind Peloton Member
Treadmill Screen Reader Innovation

2021 - Present
Research: How were blind people using treadmills?

There’s no treadmill on the market with a screen reader.

- Users reported having to rely on memory to know their current speed & incline
- Built-in metrics and programming were inaccessible so users found workarounds
Research: How did people wish treadmills worked?

- Meaningful auditory feedback as speed and incline change
- Regular readouts of metrics instructors use in classes, and personal statistics
- Same level of access to on-screen info and interactions that anyone else has
- Temporarily lower the class volume so important alerts are perceptible (audio ducking)
Why couldn’t we just turn TalkBack on?

“TalkBack is a screen reader and Tread is more than just a screen.”

-Kimberly McCarty, Software Engineer

Hardware safety alerts weren’t reliably perceptible

- Navigation was usable, but there weren’t any audible speed and incline changes and alerts
- Treadmills are loud
- TalkBack had limitations when it came to establishing rules to protect important announcements
At the end of the day, we wanted to build an Equivalent Experience, balancing entertainment with reliably perceptible feedback and safety alerts.

The challenge was condensing the sheer volume of dynamic visual data into one accessibility audio stream that plays nicely with our media.
Car Infotainment Systems

Striking a balance in informational audio

- Hierarchy of announcements and alerts
- Earcon chimes quickly draw attention and minimize entertainment interruption
- Audio ducking & auditory processing human factors research
Our proof of concept

Featuring Haley Holden, Software Engineer
Initial Reaction, ft. Patrick Sturdivant
3 Key Takeaways
Involving People with Disabilities has a Large Positive Impact
Designing Equivalent Experience requires Creativity especially when there is a lot of visual data
Inclusive Design can Coexist with Retrofitting

Inclusive Approach
● Involve people with disabilities
● Incorporate more perspectives
● Iterate and test

Retrofitting
● Adding accessibility later
Questions?