Tips for accessible and inclusive design practices

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(along with Dr. Matt Winn)
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Inclusive design
Inclusive design

Disability is a spectrum of experiences!
Inclusive design

Disability is a spectrum of experiences!

Good science communication =
Making sure your audience understands the message
Inclusive design

Disability is a spectrum of experiences!

Good science communication =
Making sure your audience understands the message

... That includes everyone 😊
Inclusive design

Tips for accessible and inclusive design practices

Great online resources:
- https://www.betterment.com/design/accessible-data-visualization
- http://www.inclusivedesigntoolkit.com/UCvision/vision.html#nogo

Tools:
- Check your color palettes: https://coolors.co
- Color blindness simulator: http://www.color-blindness.com/coblis-color-blindness-simulator/

ARO Accessibility committee:
Inclusive design

Tips for **accessible** and **inclusive** design practices

**Great online resources:**
- [http://www.inclusivedesigntoolkit.com/UCvision/vision.html#nogo](http://www.inclusivedesigntoolkit.com/UCvision/vision.html#nogo)

**Tools:**
- Check your color palettes: [https://coolors.co](https://coolors.co)

**ARO Accessibility committee:**

*We will share these resources after the workshop!*
Inclusive design

Tips for **accessible** and **inclusive** design practices

Focus on strategies that will be helpful for those with **hearing** and/or **vision difficulties**
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Inclusive design

Tips for **accessible** and **inclusive** design practices

Focus on strategies that will be helpful for those with hearing and/or vision difficulties

**Spotlight!**

Supporting Equity and Inclusion of Deaf and Hard-of-Hearing Individuals in Professional Organizations

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Inclusive design

Tips for **accessible** and **inclusive** design practices

What does it mean to be **accessible**?

*Having access to information*
Tips for **accessible** and **inclusive** design practices

What does it mean to be **accessible**?

*Having access to information*

What are they saying?
Inclusive design

Tips for **accessible** and **inclusive** design practices

**What does it mean to be accessible?**

*Having access to information*

![Image of two people with a thought bubble: "That's better 😊"]

...I'm studying how hair cells develop....
Inclusive design

Tips for **accessible** and **inclusive** design practices

What does it mean to be **inclusive**?
Inclusive design

Tips for accessible and inclusive design practices

What does it mean to be inclusive?
Tips for **accessible** and **inclusive** design practices

**What does it mean to be inclusive?**

*Making intentional design choices that make it easier to understand*
Inclusive design

Tips for **accessible** and **inclusive** design practices

**What does it mean to be inclusive?**

*Making intentional design choices that make it easier to understand*

Research

* I can sort of tell the difference? 😞
Inclusive design

Tips for accessible and inclusive design practices

What does it mean to be inclusive?

Making intentional design choices that make it easier to understand
Making your figures accessible

Tip 1: **Be redundant** in how you present information
Making your figures accessible

*Tip 1: Be redundant in how you present information*

For example:

> “I presented 4 or 12 Hz amplitude modulation (AM)...”

On poster/slide, you put:

4 or 12 Hz AM
Tip 1: **Be redundant** in how you present information

For example:

“I presented 4 or 12 Hz amplitude modulation (AM)...”

Better: **Visualize audio stimuli**

On poster/slide, you put:

4 or 12 Hz AM
Making your figures accessible

<table>
<thead>
<tr>
<th>Tip 1: <strong>Be redundant</strong> in how you present information</th>
</tr>
</thead>
</table>

For example:

"I presented 4 or 12 Hz amplitude modulation (AM)...

Better: **Visualize audio stimuli**

<table>
<thead>
<tr>
<th>4 Hz AM</th>
<th>or</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="4 Hz AM" /></td>
<td><img src="image2.png" alt="12 Hz AM" /></td>
</tr>
</tbody>
</table>
Making your figures accessible

Tip 1: **Be redundant** in how you present information

Better: **Visualize audio stimuli**
Tip 1: Be redundant in how you present information

Use essential labels / text to understand the figure without having to rely 100% on what you are saying.
Making your figures accessible

Tip 1: **Be redundant** in how you present information

Use **essential labels / text** to understand the figure without having to rely 100% on what you are saying.
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Making your figures accessible

Tip 1: **Be redundant** in how you present information

Use **essential labels / text** to understand the figure without having to rely 100% on what you are saying
Making your figures accessible

Tip 1: **Be redundant** in how you present information

Use **different line textures** or **shapes** for each condition/group.
Tip 1: Be redundant in how you present information

Use different line textures or shapes for each condition/group.
Making your figures accessible

Tip 1: **Be redundant** in how you present information

Use **different line textures or shapes** for each condition/group

**Better!**
Tip 1: **Be redundant** in how you present information

Use **different line textures** or **shapes** for each condition/group
Making your figures accessible

Tip 2: **Slow down** and **pause** after important points

Allows for **time to process** what you are saying

I recorded auditory brainstem responses to see whether there were changes to thresholds...

Wait, what?!
Making your figures accessible

Tip 2: **Slow down** and **pause** after important points

Allows for **time to process** what you are saying

I recorded auditory brainstem responses  [pause]
Tip 2: **Slow down** and **pause** after important points

Allows for **time to process** what you are saying

I recorded auditory brainstem responses    [pause]
...to see whether there were changes to thresholds  [pause]

Got it 😊
Making your figures accessible

Tip 2: Slow down and pause after important points

Allows for time to process what you are saying

Allows for automatic captioning to align with what you’re saying
Tip 3: Choose your **color palettes** carefully

*Different types of colorblindness*
Tip 3: Choose your **color palettes** carefully

Different types of colorblindness
Making your figures accessible

Tip 3: Choose your color palettes carefully

Full color vision

Proportion of cells (%) vs. Afferent stimulation (mA)

- Hearing loss
- Control

Color palette for Protaganopia

- Hearing loss
- Control
Tip 3: Choose your **color palettes** carefully
Making your figures accessible

Tip 3: Choose your **color palettes** carefully

*Small changes to the color go a long way!*
Making your figures accessible

Tip 3: Choose your **color palettes** carefully

**Examples of accessible palettes**

https://davidmathlogic.com/colorblind
Tip 3: Choose your color palettes carefully

There are many great online tools!
Making your figures accessible

Tip 3: Choose your color palettes carefully

There are many great online tools!

Coolors.co
Create your own color palettes

View them through different colorblind filters
Tip 3: Choose your **color palettes** carefully

There are many great **online tools!**

**Coblis-Color Blindness Simulator**

Upload existing figure

View it through different colorblind filters
Tip 3: Choose your **color palettes** carefully

There are many great **online tools**!

**Coblis- Color Blindness Simulator**

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Coblis-Color Blindness Simulator

Upload existing figure

View it through different colorblind filters
Making your figures accessible

Tip 4: Incorporate **high contrast** elements
Tip 4: Incorporate **high contrast** elements
Making your figures accessible

Tip 4: Incorporate **high contrast** elements

Increase contrast by **adding a white border**

*Without a border*

*With a border*
Making your figures accessible

Tip 5: Increase clarity of text and data

Aim for:
- Larger text and data points

Original text
- design
- design

Reduced visual clarity
- design
- design

Larger text = easier to see
Making your figures accessible

Tip 5: **Increase clarity** of text and data

**Aim for:**
- Larger text and data points
- Use distinctive data point shapes

With line texture
With shape variability
Making your figures accessible

Tip 5: *Increase clarity* of text and data

**Aim for:**
- Larger text and data points
- Use distinctive data point shapes
- Use sans serif font

```
Serif  →  design  design  design  design
Sans serif  →  design  design  design  design
Decorative  →  design  design  design  design
```
Making your figures accessible

Tip 5: **Increase clarity** of text and data

**Aim for:**
- Larger text and data points
- Use distinctive data point shapes
- Use sans serif font

Reduced visual clarity

- Serif
- Sans serif
- Decorative
Things to keep in mind for presenting virtually

1. Make sure **automatic captioning** is enabled

[Images of Zoom and Google Meet interfaces showing how to enable live captions]
Things to keep in mind for presenting virtually

1. Make sure **automatic captioning** is enabled

2. **Clear view** of your face
Things to keep in mind for presenting virtually

1. Make sure **automatic captioning** is enabled
2. **Clear view** of your face
3. Make sure your **audio has good quality**
4. Use the **chat feature** to ask / answer questions (if needed)
Things to keep in mind for in-person ARO
Things to keep in mind for in-person ARO

Communicating in **noisy conference rooms** with masks will be **hard**!
Things to keep in mind for in-person ARO

Communicating in noisy conference rooms with masks will be hard!

Tips to make it easier:
Things to keep in mind for in-person ARO

Communicating in noisy conference rooms with masks will be hard!

Tips to make it easier:

1. Wear a clear mask

    ARO will provide 1 free mask at check-in
Things to keep in mind for in-person ARO

Communicating in noisy conference rooms with masks will be hard!

Tips to make it easier:

1. Wear a clear mask

   ARO will provide 1 free mask at check-in

Other vendors:

   Safe n’Clear
   https://safenclear.com/

   FaceView Mask
   https://faceviewmask.com/
Things to keep in mind for in-person ARO

Communicating in **noisy conference rooms** with masks will be **hard**!

Tips to make it **easier**:

1. **Wear a clear mask**
   
   *ARO will provide 1 free mask at check-in*

2. **Download automatic captioning apps**
   
   *Otter, Google Live Transcribe*
Things to keep in mind for in-person ARO

Communicating in *noisy conference rooms* with masks will be **hard**!

Tips to make it **easier**:

1. Wear a clear mask
   - *ARO will provide 1 free mask at check-in*

2. Download automatic captioning apps
   - *Otter, Google Live Transcribe*

3. Bring notepad and pen
   - *Write down your question(s)!*