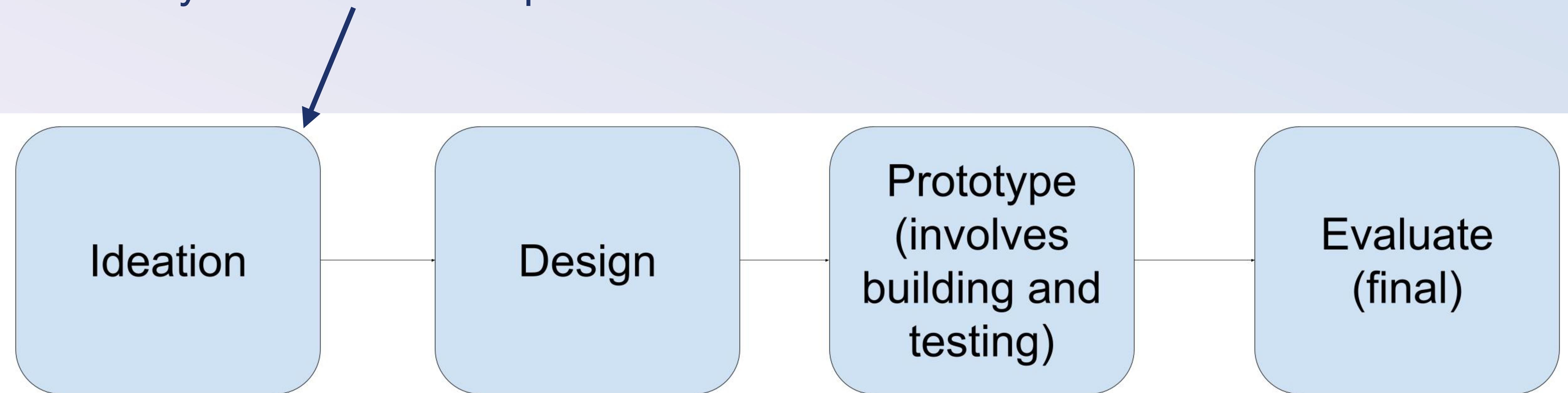


# Chapter 4, Episode 2: Beyond “access:” from designing *for* to designing *with*

# Involving people with disabilities in the design process

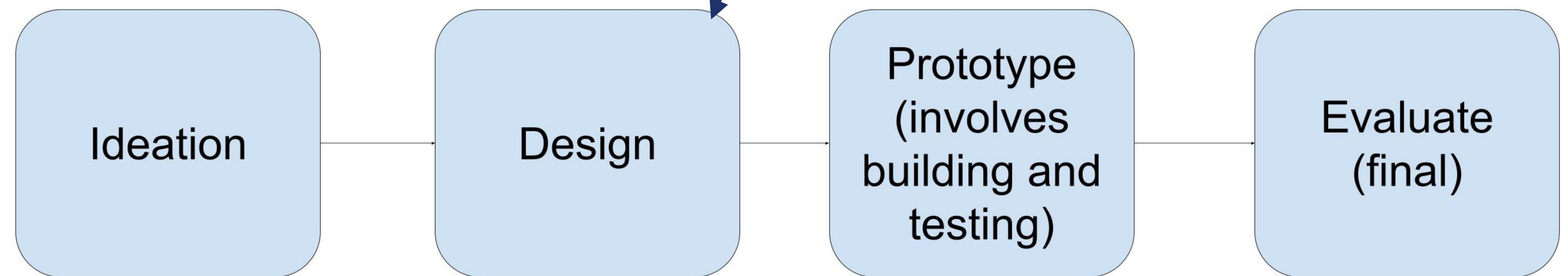
Disability-led motivation/problem definition



Source: [“How not to make bad AT” by Iman et al](#)

# Involving people with disabilities in the design process

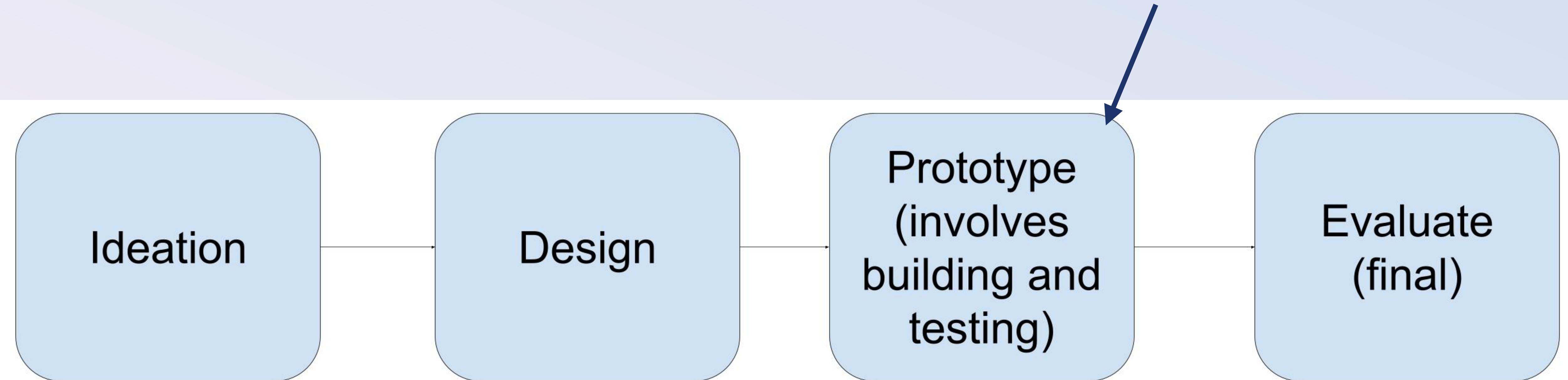
Co-design or participatory design



Source: [“How not to make bad AT” by Iman et al](#)

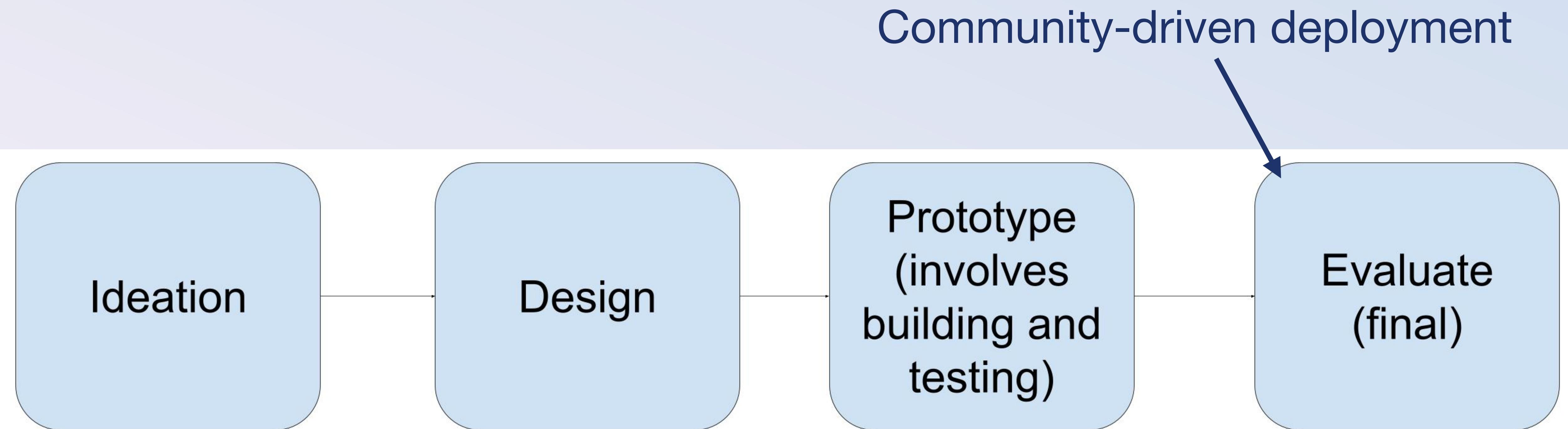
# Involving people with disabilities in the design process

Auto-innovation, or  
the researcher-as-maker



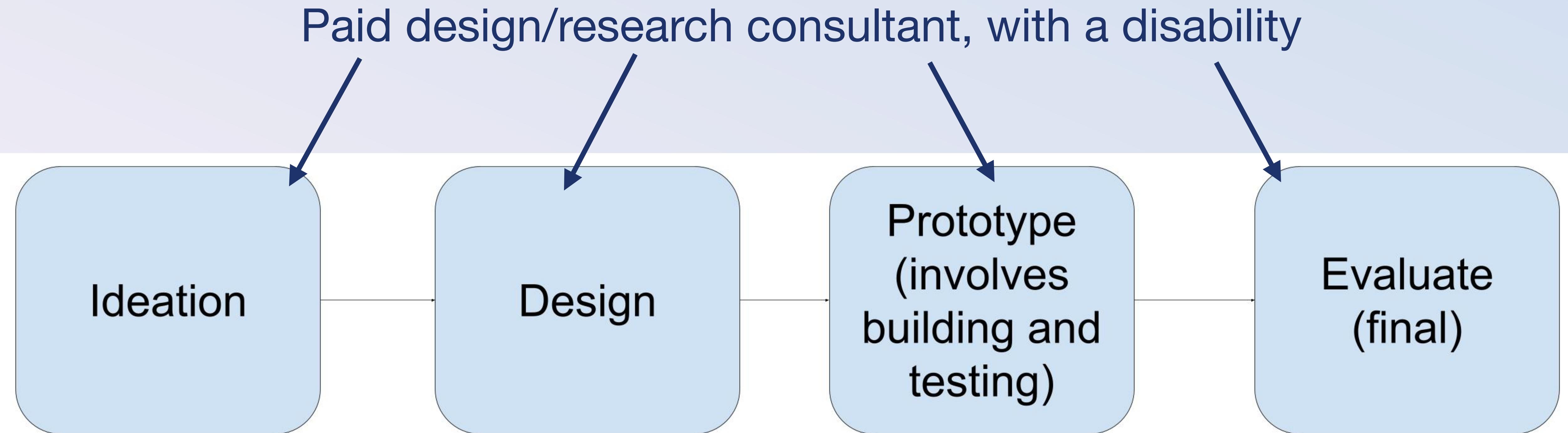
Source: [“How not to make bad AT” by Iman et al](#)

# Involving people with disabilities in the design process



Source: [“How not to make bad AT” by Iman et al](#)

# Involving people with disabilities in the design process



Source: [“How not to make bad AT” by Iman et al](#)

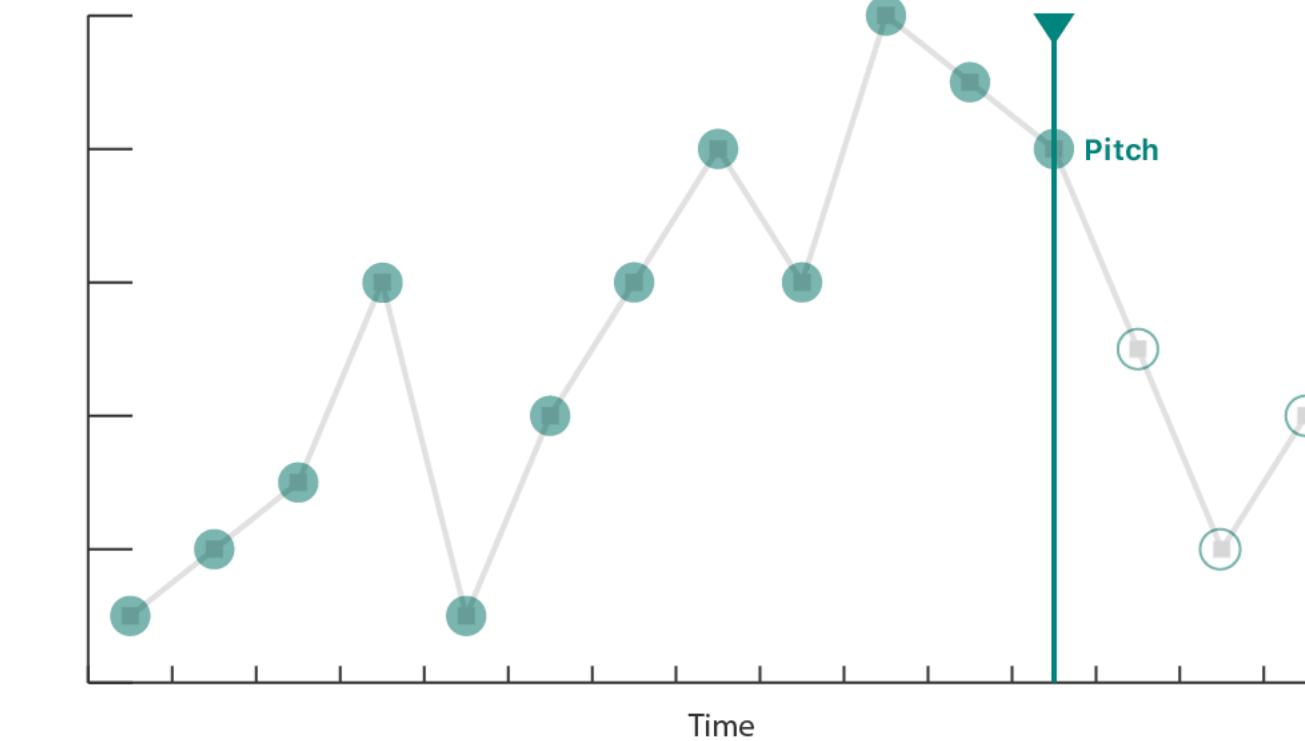
# Co-designing audio graphs

## Audio graphs

Define an accessible representation of your chart for VoiceOver to generate an audio graph.

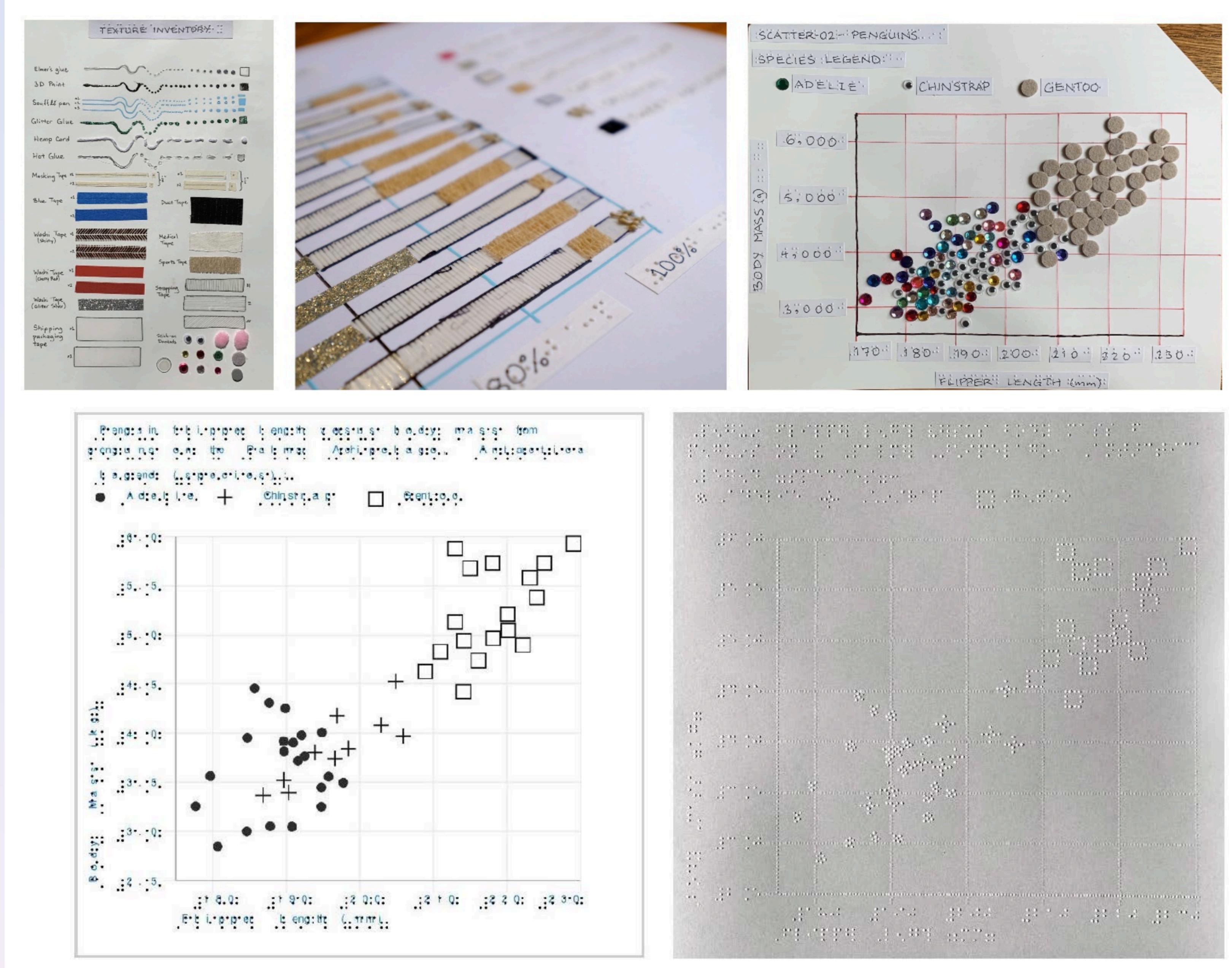
### Overview

Charts and graphs help users quickly identify important features and trends in data. Use the audio graphs API to provide all the information that VoiceOver needs to construct an audible representation of the data in your charts and graphs, making the data accessible to people who are blind or have low vision.



Source: [Apple's Audio Graphs](#)

# Co-designing audio graphs



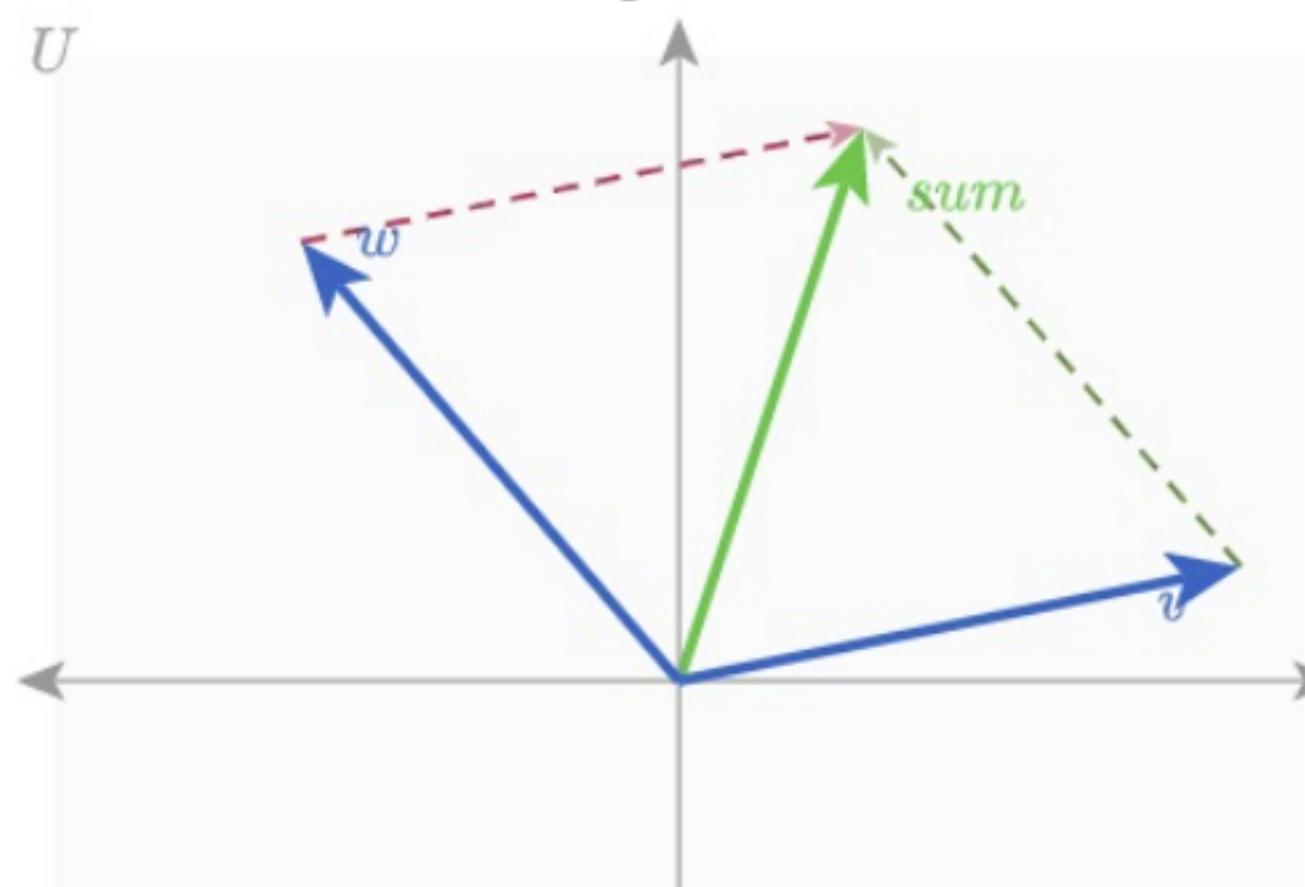
["Interdependent variables" by de Greef et al](#)

# Refreshable tactile displays

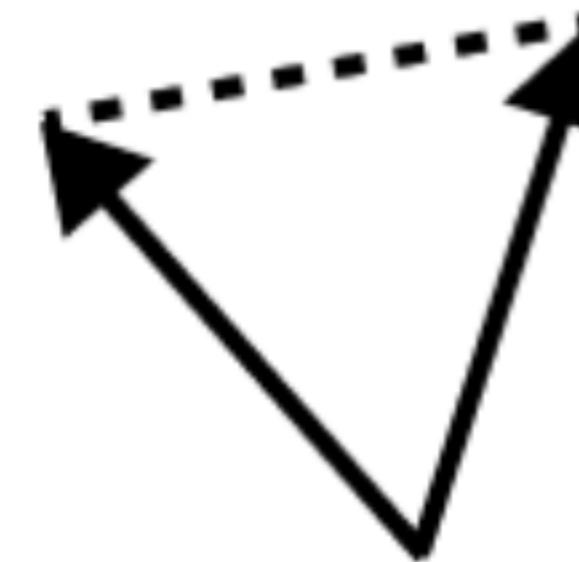


# Co-designing tactile experiences

**A. Reference parallel vector diagram**



**B. Traced portion**



**C. Braille pin array output**



Source: [Data Navigator](#), by Elavsky et al

# Co-designed set diagram navigation

