About us, with us: The Fluid Project's Inclusive Design Tools

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fluid

An open community for designers, users, artists, testers, accessibility experts, thinkers, and all the other people who don't usually fit into open source.

fluidproject.org

The Fluid Project

- Founded in 2007 to address the systemic usability and accessibility challenges of open source software and the open web

- Diverse activities: standardization, software development frameworks, reusable UI components, and design methods

- Driven by an inclusive design approach; users should be in control of adapting and personalizing their software environments

Inclusive Design

Inclusive Design is design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference.

The Challenge of Design Tools

- Design tools are too often influenced by industry-driven or medical science research methods

- People with disabilities are too often excluded from the design process and the resulting user experience; assumptions —"we know what's best for you" mentality and professionalism divide

"HCI has an unusually narrow focus. Much of the rhetoric is about empowerment and the sovereignty of the user… [However], it should be asked what model of a persona, what 'human,' is engineered by HCI."

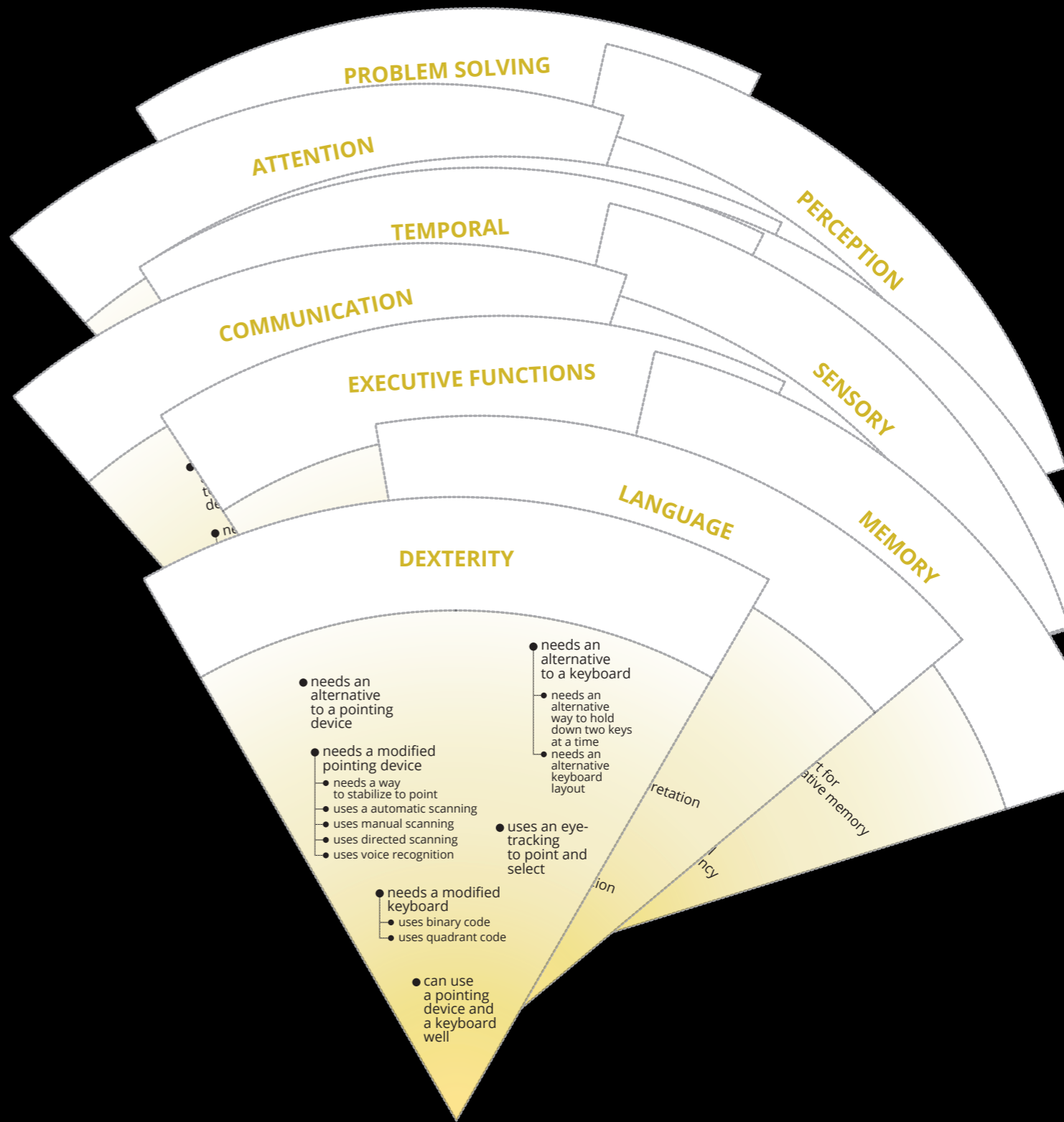Matthew Fuller, *Behind the Blip* (12)

"User" "Modelling"

- Personas typically "blur" individuals by representing multiples as one—they're static

- Industrial design literature emphasizes using personas to reduce diversity and avoid edge cases

- *However*, we are all multiplicities: dynamic, evolving, and with changing needs and preferences under different circumstances and in different environments

- *And* edge cases are a key driver of innovation and usability

Inclusive Design Mapping Tool
(user states and contexts)

SOCIAL
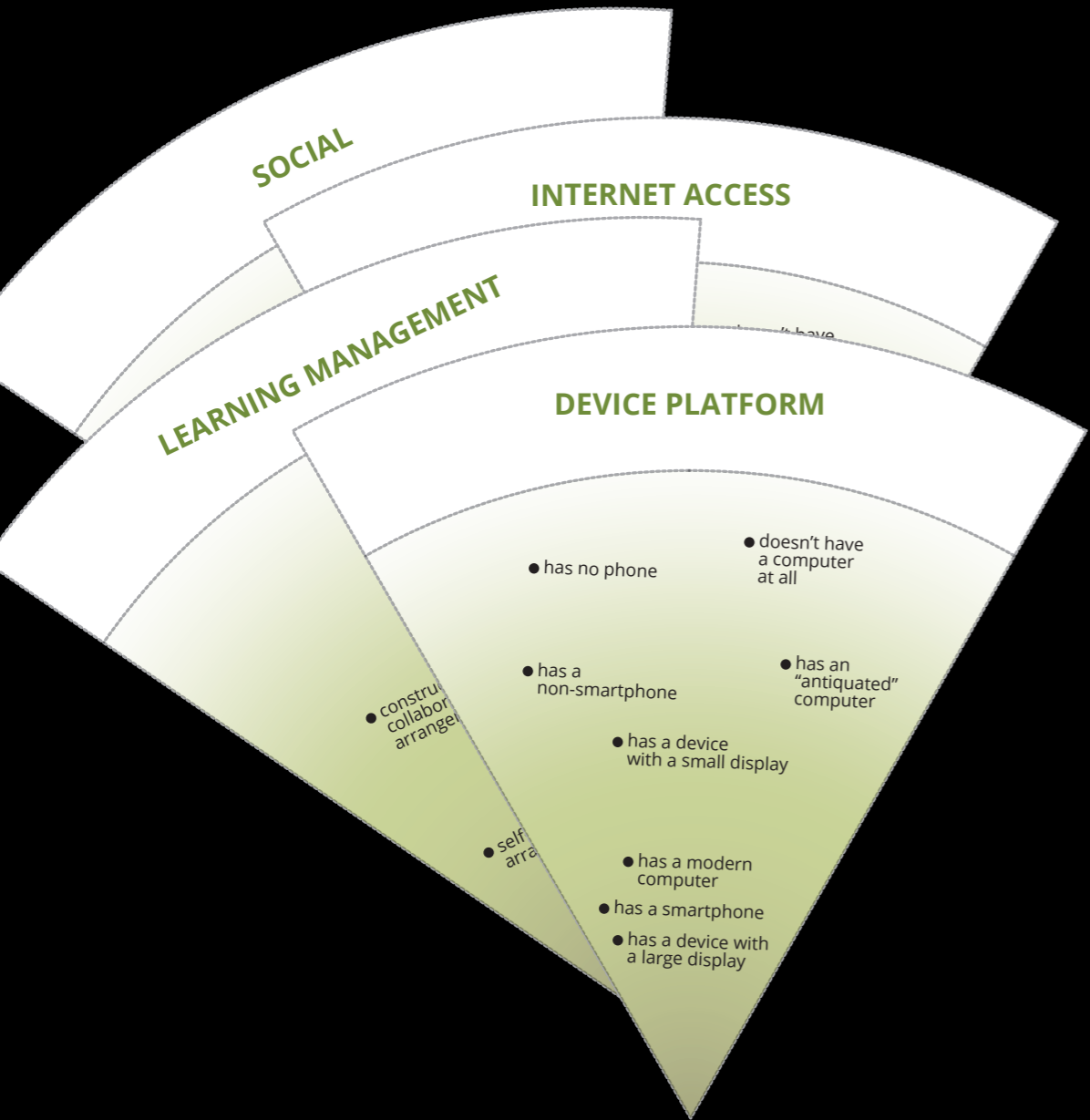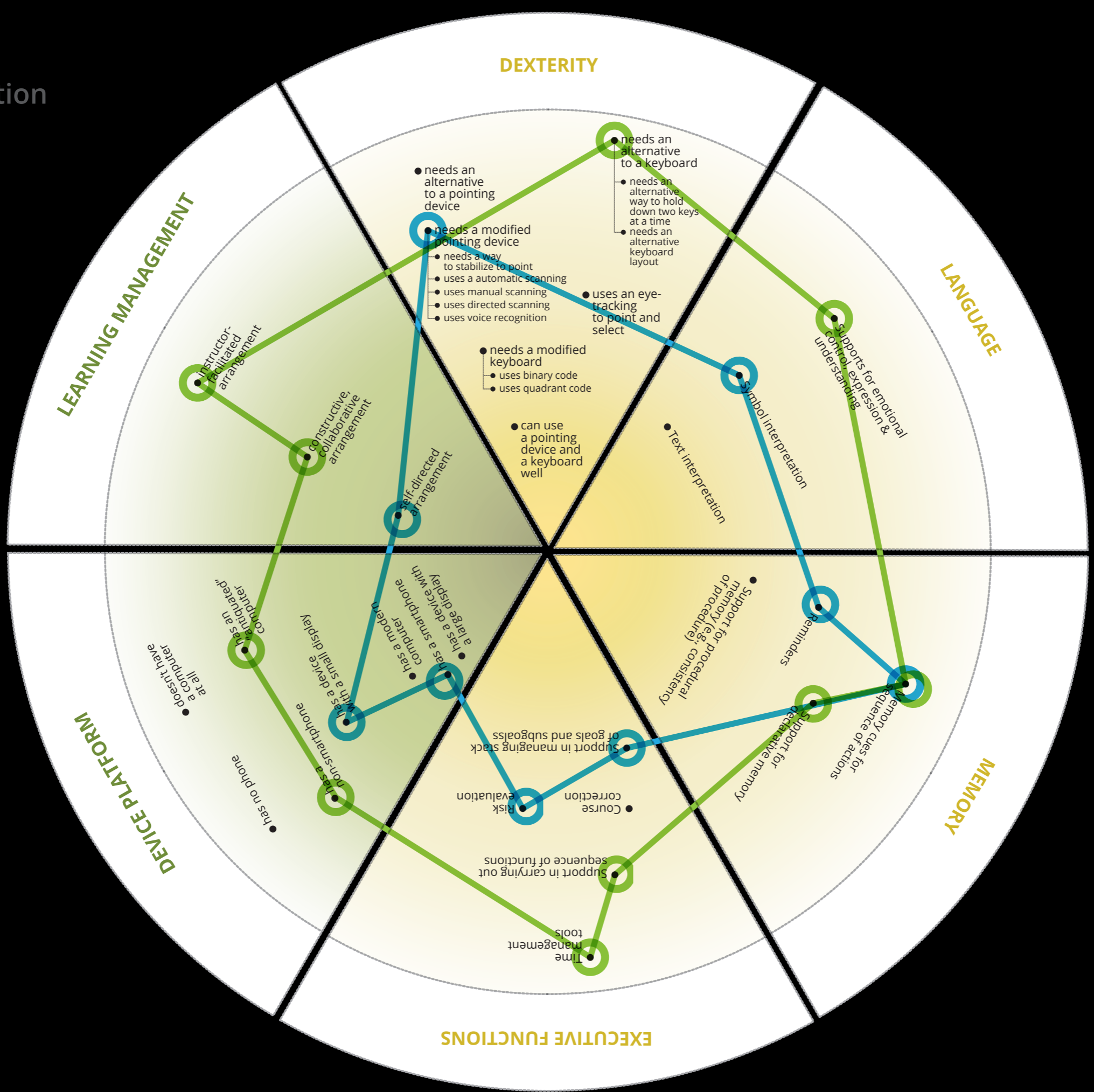
INTERNET ACCESS

LEARNING MANAGEMENT

DEVICE PLATFORM

- doesn't have a computer at all
- has no phone
- has a non-smartphone
- has an "antiquated" computer
- has a device with a small display
- construct... collabor... arrange...
- self... arr...
- has a modern computer
- has a smartphone
- has a device with a large display

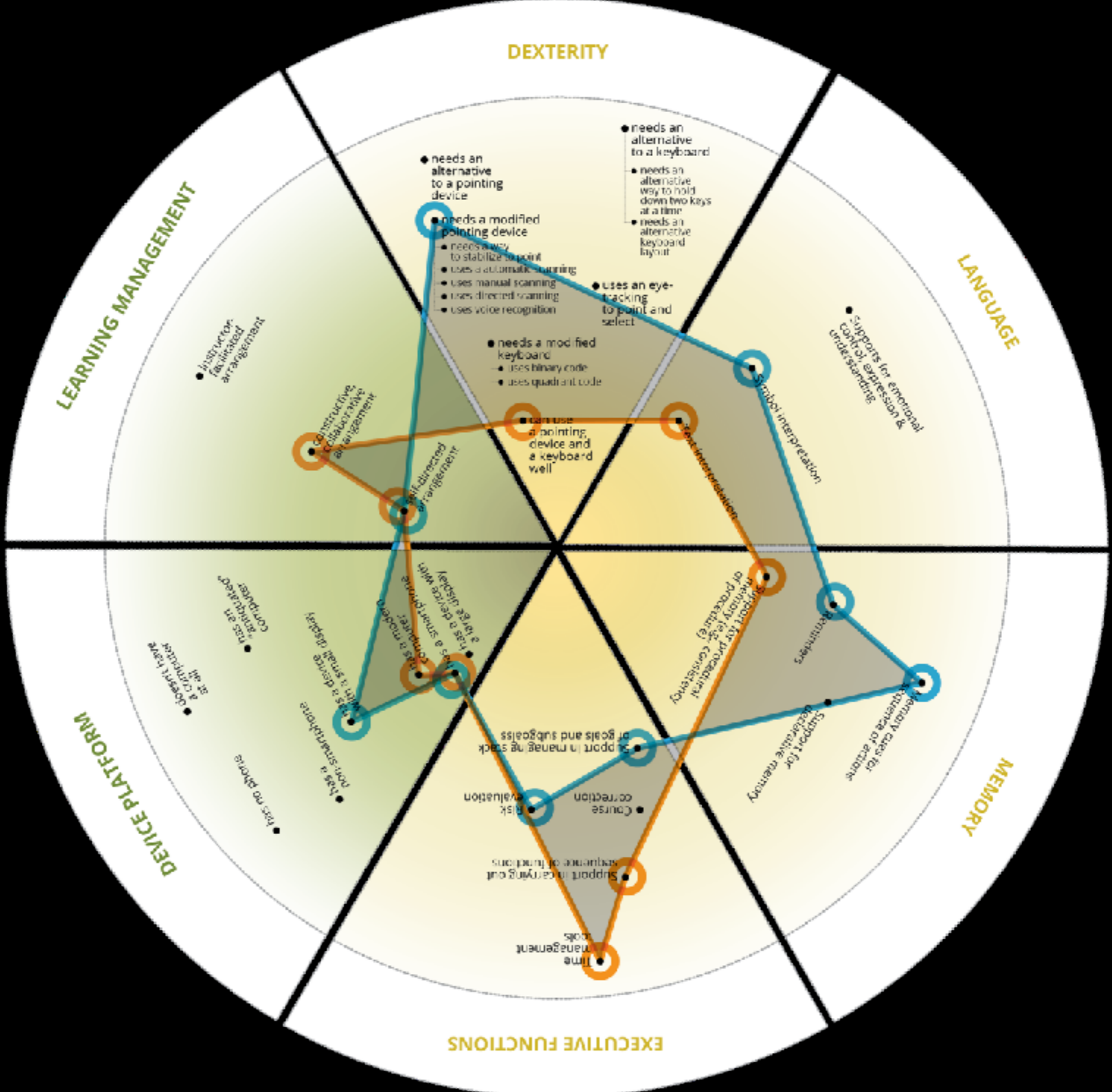**PROBLEM SOLVING**

ATTENTION

PERCEPTION

TEMPORAL

COMMUNICATION

SENSORY

EXECUTIVE FUNCTIONS

LANGUAGE

MEMORY

DEXTERITY

- needs an alternative to a keyboard
- needs an alternative way to hold down two keys at a time
- needs an alternative keyboard layout
- needs an alternative to a pointing device
- needs a modified pointing device
  - needs a way to stabilize to point
  - uses a automatic scanning
  - uses manual scanning
  - uses directed scanning
  - uses voice recognition
- uses an eye-tracking to point and select
- needs a modified keyboard
  - uses binary code
  - uses quadrant code
- can use a pointing device and a keyboard well
- ...retation
- ...tion
- ...ncy
- t for ...ative memory

DEXTERITY

needs an alternative to a keyboard

needs an alternative way to hold down two keys at a time

needs an alternative keyboard layout

needs an alternative to a pointing device

needs a modified pointing device

needs a way to stabilize to point

uses a automatic scanning

uses manual scanning

uses directed scanning

uses voice recognition

uses an eye-tracking to point and select

needs a modified keyboard

uses binary code

uses quadrant code

can use a pointing device and a keyboard well

LANGUAGE

Supports for emotional control, expression & understanding

Symbol interpretation

Text interpretation

LEARNING MANAGEMENT

Instructor-facilitated arrangement

constructive, collaborative arrangement

Self-directed arrangement

MEMORY

Support for memory (e.g. procedural) or procedural consistency

Reminders

Support for declarative memory

Memory cues for sequence of actions

DEVICE PLATFORM

doesn't have a computer at all

has an "antiquated" computer

has no phone

has a device with a small display

has a modern computer

has a device with a large display

has a smartphone

has a non-smartphone

EXECUTIVE FUNCTIONS

Support in managing stack of goals and subgoals

Risk evaluation

Course correction

Support in carrying out sequence of functions

Time management tools

tion

USER STATES & CONTEXTS
COMPLETE DESIGN REQUIREMENTS

SUSAN
LAUREN
PETER
ALBERT
LIZ

SOCIAL

SENSORY

INTERNET ACCESS

DEVICE PLATFORM

DEXTERITY

LEARNING ARRANGEMENT

TEMPORAL

COMMUNICATION

COGNITIVE

- noisy context
- frequent distractions
- occasional distractions from the physical context
- needs an alternative to all visual information
  - needs braille
  - needs tactile graphics
- needs an alternative to colours
- occasional distractions from email and social networks
- needs to interact without internet
- has occasional access to high-speed internet
- needs to enhance visibility
- needs to enhance audio
- needs an alternative to all audio
- has ready access to low speed internet
- quiet environment
- has occasional access to low speed internet
- no distractions
- can see well
- needs an alternative to aural interactions
- doesn't have a computer at all
- has an "antiquated" computer
- has ready access to high-speed internet
- can hear well
- has a non-smartphone
- has a modern computer
- can speak well
- uses an eye tracking to point and select
- needs an alternative to a pointing device
- has a smartphone
- needs a modified pointing device
- has a device with a large display
- can use a pointing device and a keyboard well
  - needs a way to stabilize to point
  - uses a automatic scanning
  - uses manual scanning
  - uses directed scanning
  - uses voice recognition
- has a device with a small display
- needs an alternative to a keyboard
- has no phone
- needs a modified keyboard
  - uses binary code
  - uses quadrant code
- needs an alternative way to hold down two keys at a time
- self-directed arrangement
- finds the content understanable
- uses a touchscreen
- needs an alternative keyboard layout
- constructive, collaborative arrangement
- adapts to all interaction sessions
- finds the page layout readable
- is fluent in this language
- needs simplified layout
- instructor-facilitated arrangement
- prefers longer interaction sessions
- understands this language
- needs simplified content
- prefers shorter interaction sessions
- needs a translation of this language
- needs text to be read aloud
- needs sign language
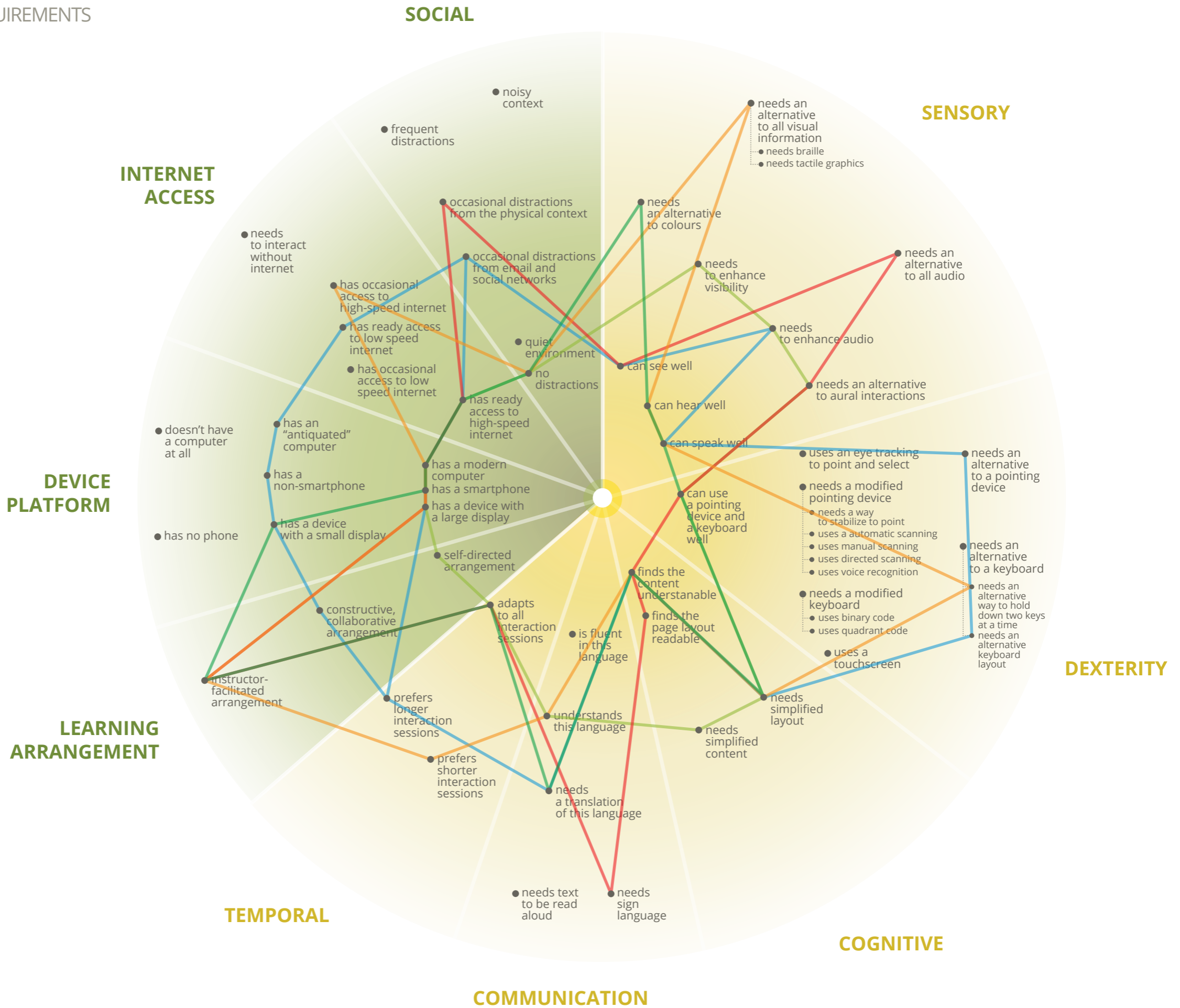
"There is a large and growing body of evidence that users don't know what they want, don't know what the medium is capable of delivering, and are… quite incapable of imagining something new, useful, desirable, or innovative. What's more, there is ample evidence that the users are entirely ignorant of their inabilities, yet will happily give their flawed answers with unequivocal emphasis."

Alan Cooper,
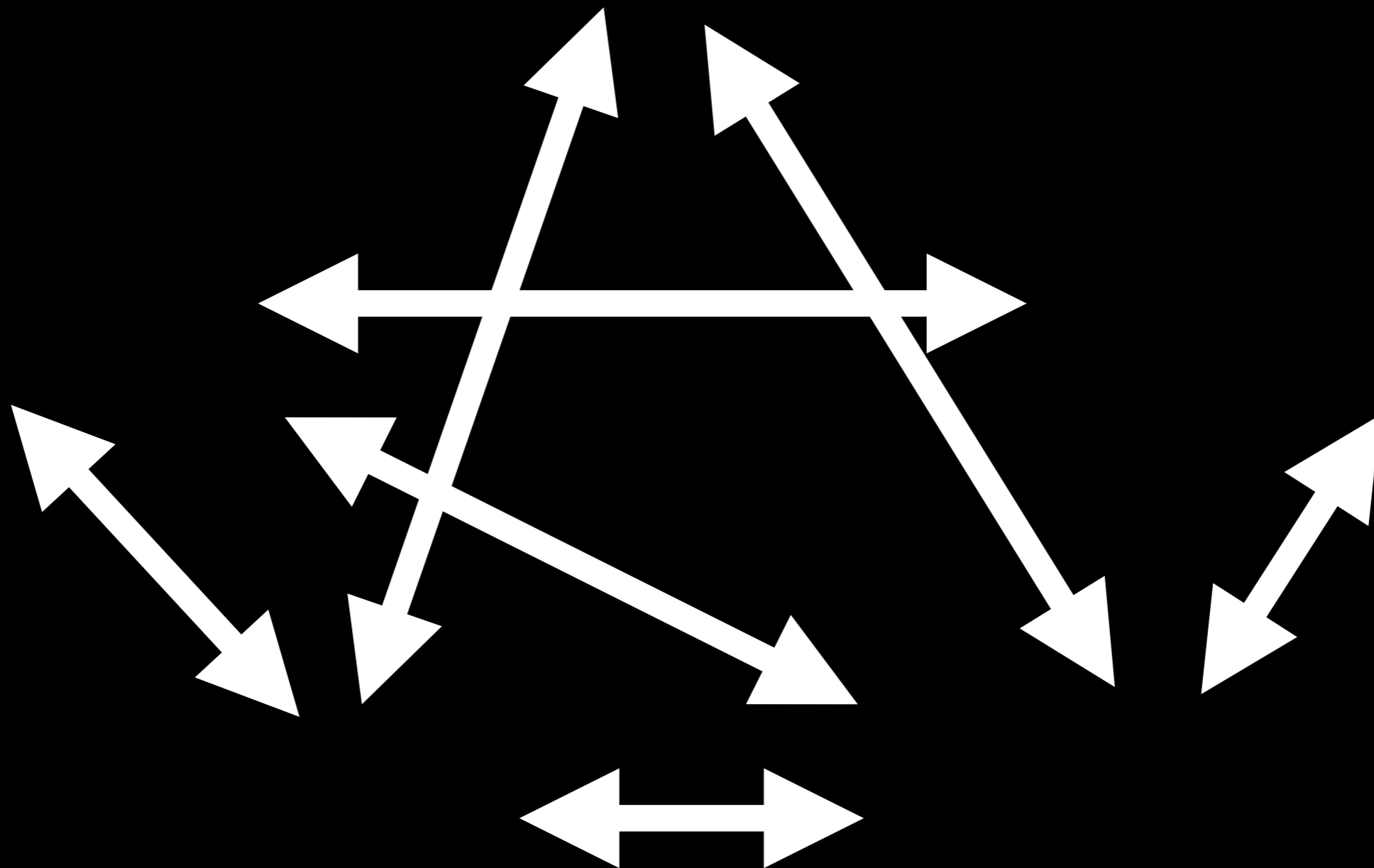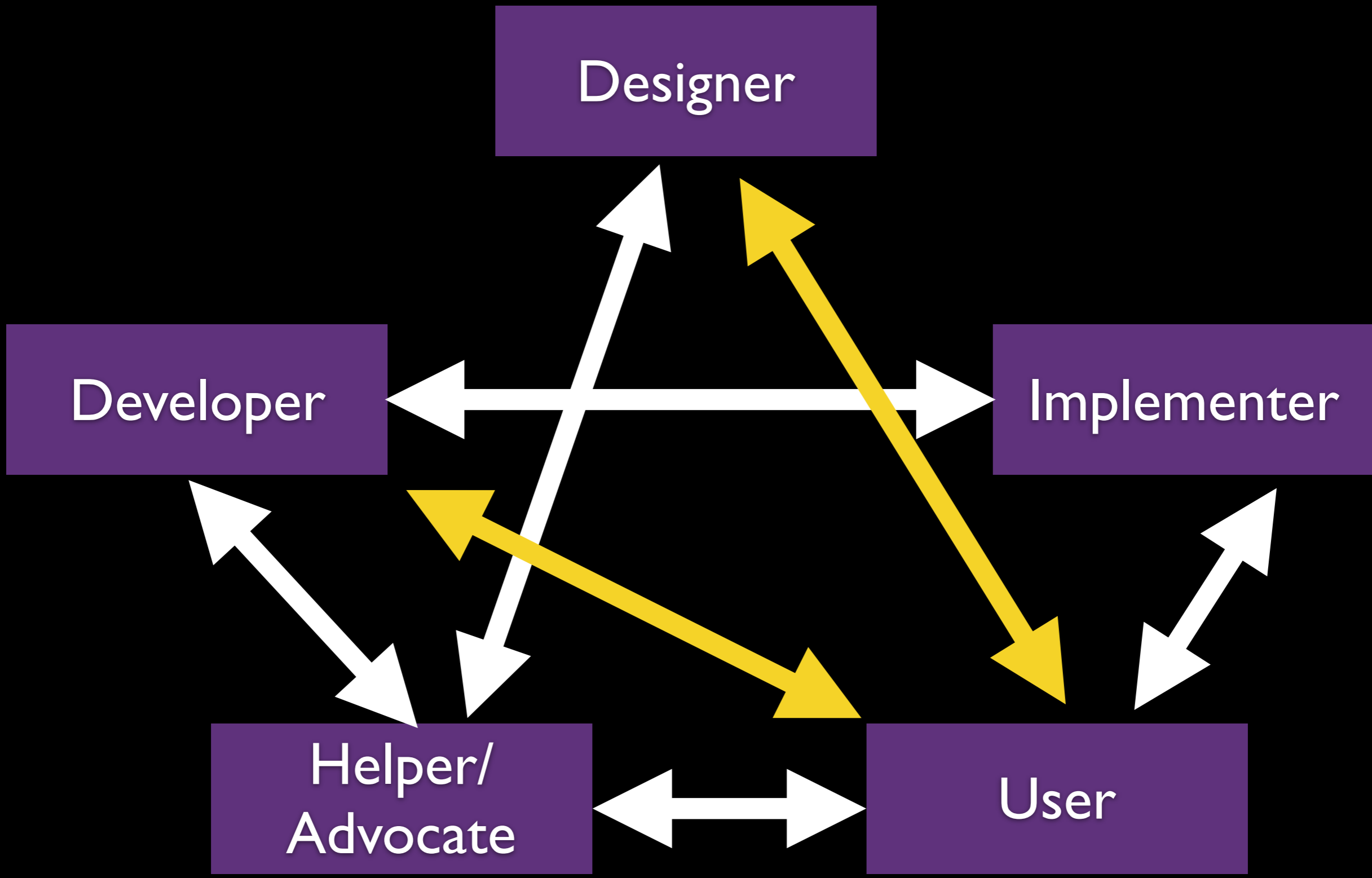"If users could lead innovation, they wouldn't be users"
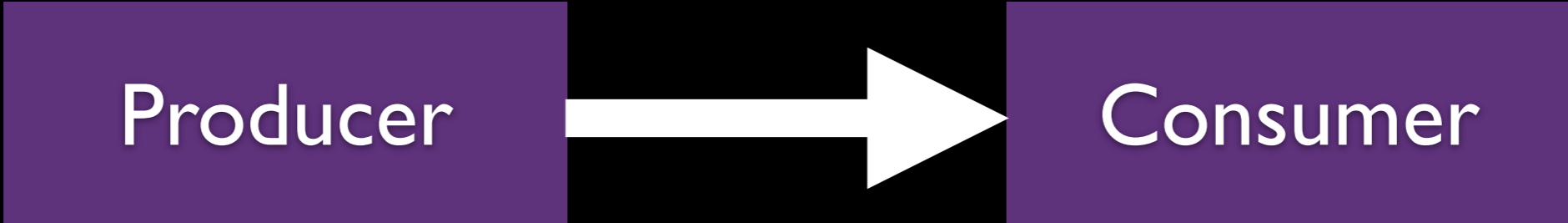
Developer
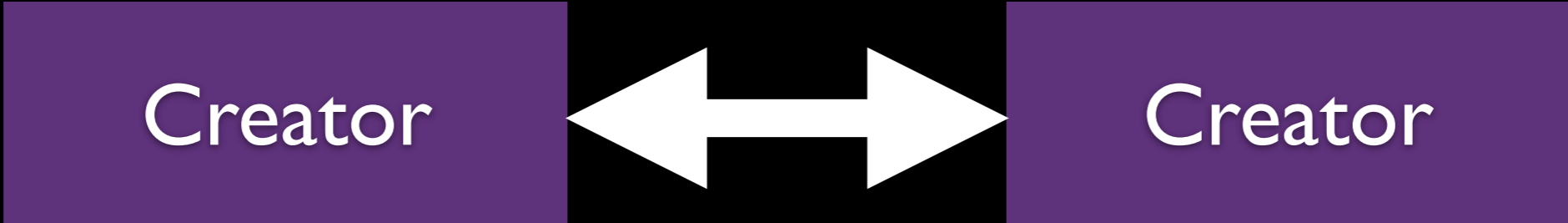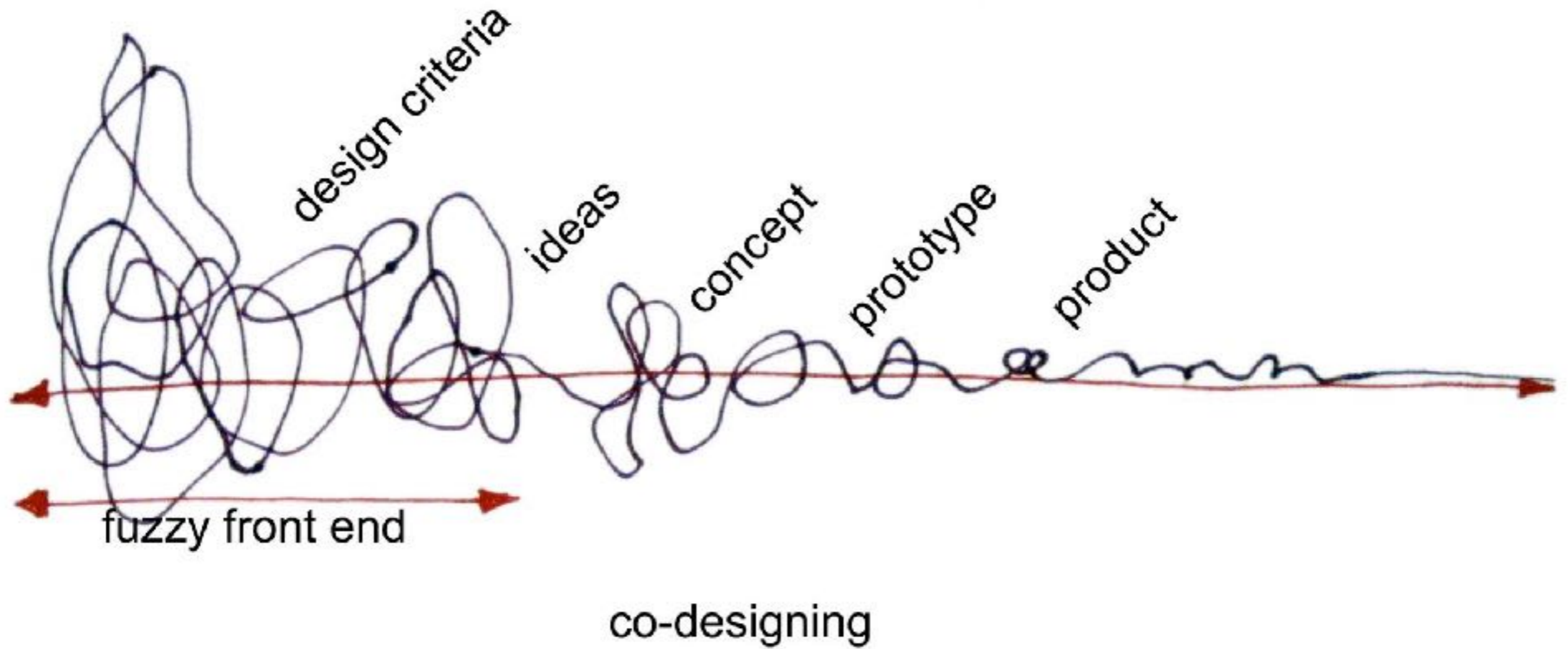
Designer

Implementer

Helper/
Advocate

User

"The person formerly known as the 'user'…"

Elizabeth B.N. Sanders and Pieter Jan Stappers,
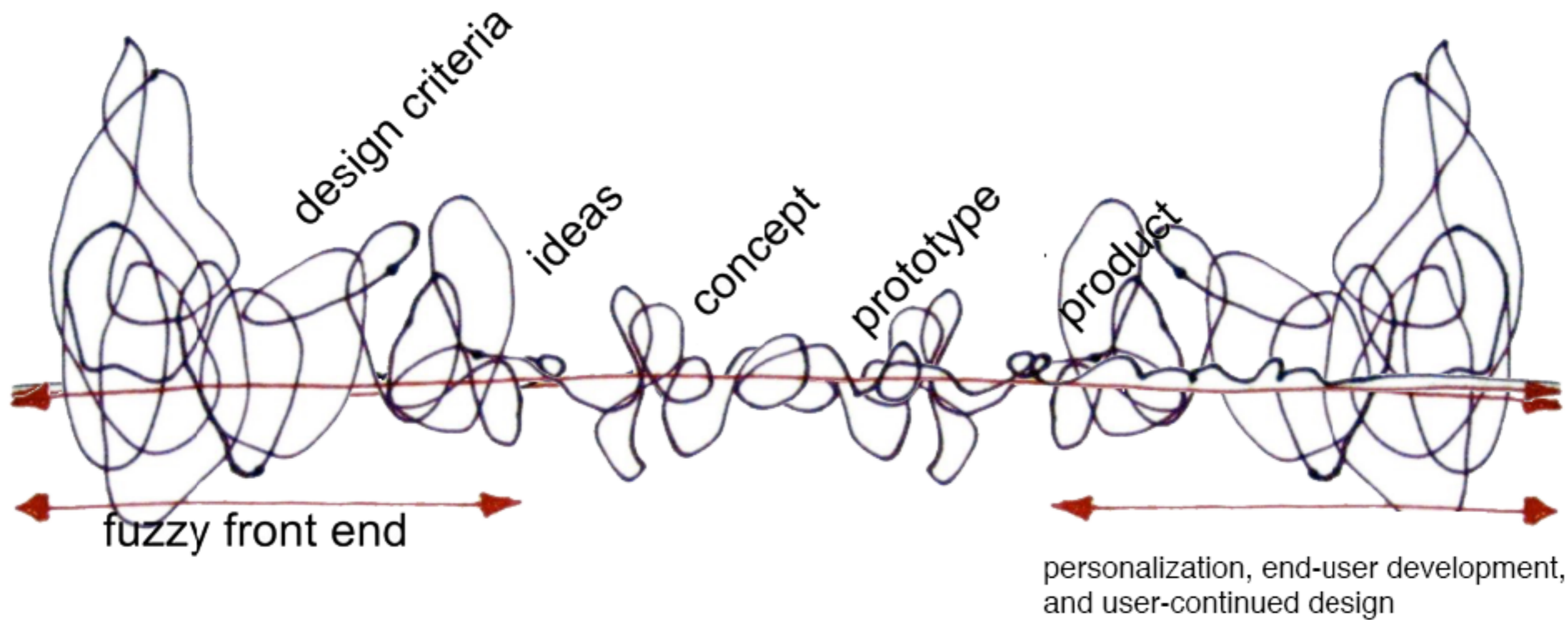"Co-creation and the new landscapes of design." (1)

Elizabeth B.N. Sanders and Pieter Jan Stappers, "Co-creation and the new landscapes of design." (3)

"Tools are intrinsic to social relationships. To the degree that [an individual] masters his tools, he can invest the world with his meaning; to the degree that he is mastered by his tools, the shape of the tool determines his own self-image. Convivial tools are those which give each person who uses them the greatest opportunity to enrich the environment with the fruits of his or her vision. Industrial tools deny this possibility to those who use them and they allow their designers to determine the meaning and expectations of others."
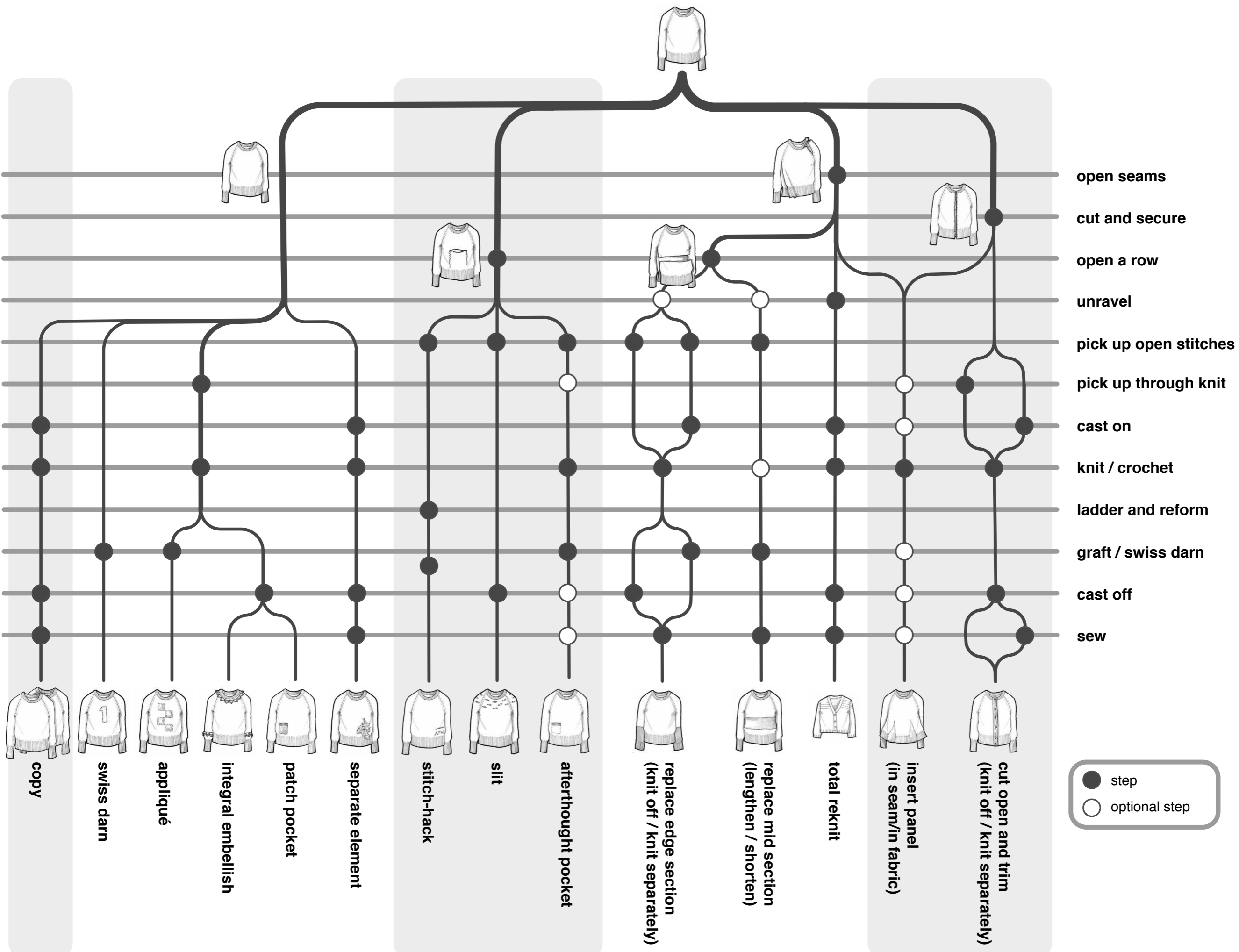
Ivan Illich, *Tools for Conviviality* (1973)

User-Continued Co-Design

- Not an instrumental process like typical design methodologies

- Dynamic, opportunistic, flexible

- "What role would you like me to play in this process?"

- Technical tools to give users the ability to adapt, customize, and remake their software environment

design criteria

ideas

concept

prototype

product

fuzzy front end

personalization, end-user development,
and user-continued design

Row labels (right side, top to bottom):
- open seams
- cut and secure
- open a row
- unravel
- pick up open stitches
- pick up through knit
- cast on
- knit / crochet
- ladder and reform
- graft / swiss darn
- cast off
- sew

Column labels (bottom, left to right):
- copy
- swiss darn
- appliqué
- integral embellish
- patch pocket
- separate element
- stitch-hack
- slit
- afterthought pocket
- replace edge section (knit off / knit separately)
- replace mid section (lengthen / shorten)
- total reknit
- insert panel (in seam/in fabric)
- cut open and trim (knit off / knit separately)

Legend:
- ● step
- ○ optional step

Material software aims to give individuals the power to…

- Change the user interface to suit them

- Combine, alter, and mix up different user interfaces

- Break the assumptions built into what they use

- Share their work with a community

- Be part of an on-going creative process

Questions?

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fluidproject.org