

experience using co-design as an hcd method

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mit media lab

I Worked at an Amazon Fulfillment Center; They Treat Workers Like Robots

TIME



Amazon's 'Safe' New Robot Won't Fix Its Worker Injury Problem

WIRED



guendelsberger (2019)

johnson (2022)

photo: paul hennessy/getty images

THE WALL STREET JOURNAL.

The Battle Over Robots at U.S. Ports Is On

Striking dockworkers are back to work—but disagreement over automation stands in the way of lasting peace

berger (2024)

CityLab | Perspective

My Fight With a Sidewalk Robot

A life-threatening encounter with AI technology convinced me that the needs of people with disabilities need to be engineered into our autonomous future.



A Starship Technologies commercial delivery robot navigates a sidewalk. *Wolfgang Rattay/Reuters*

By Emily Ackerman

November 19, 2019 at 12:43 PM EST

participatory design



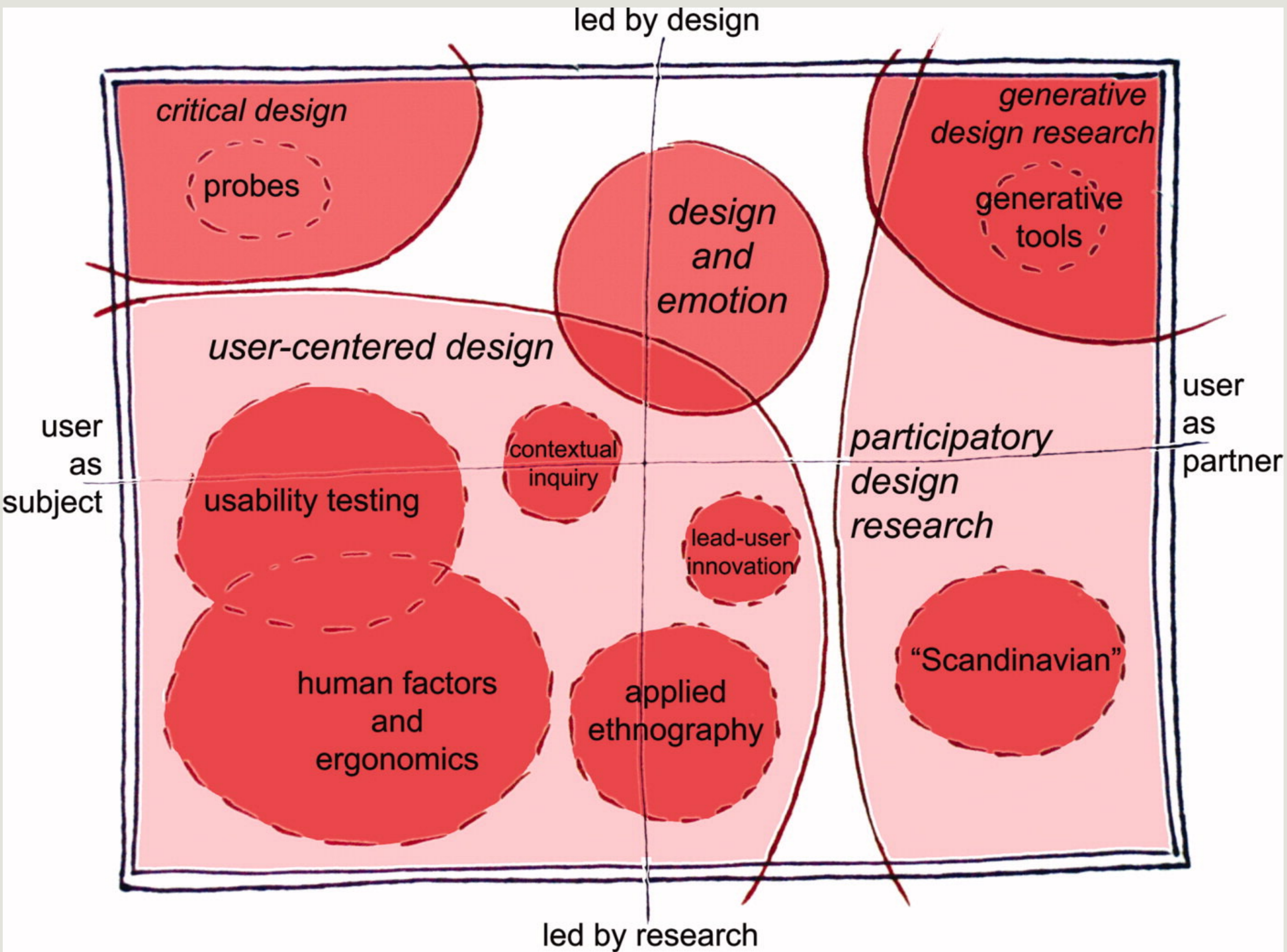
democracy

empowerment

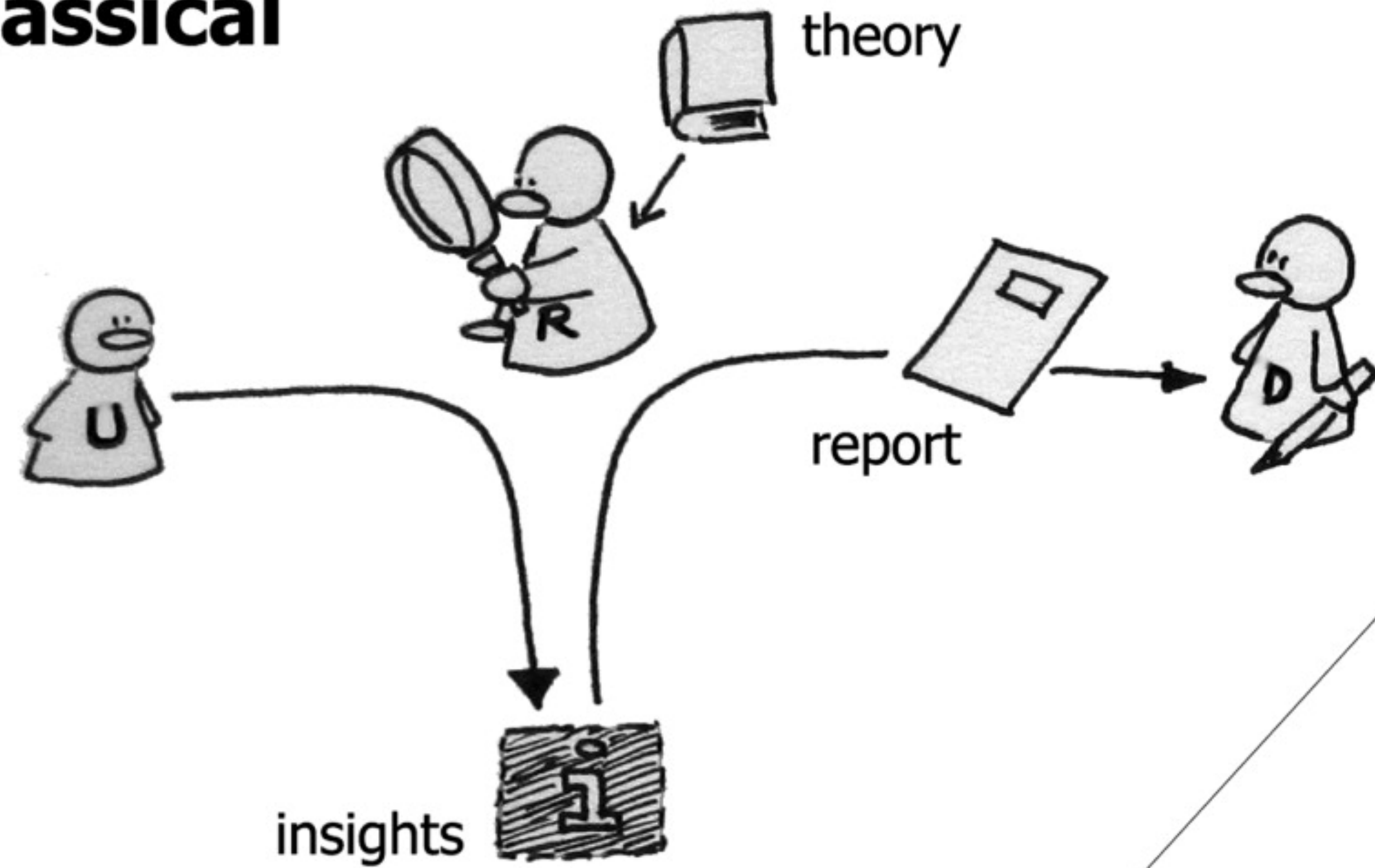
emancipatory

valuing lived
experiences

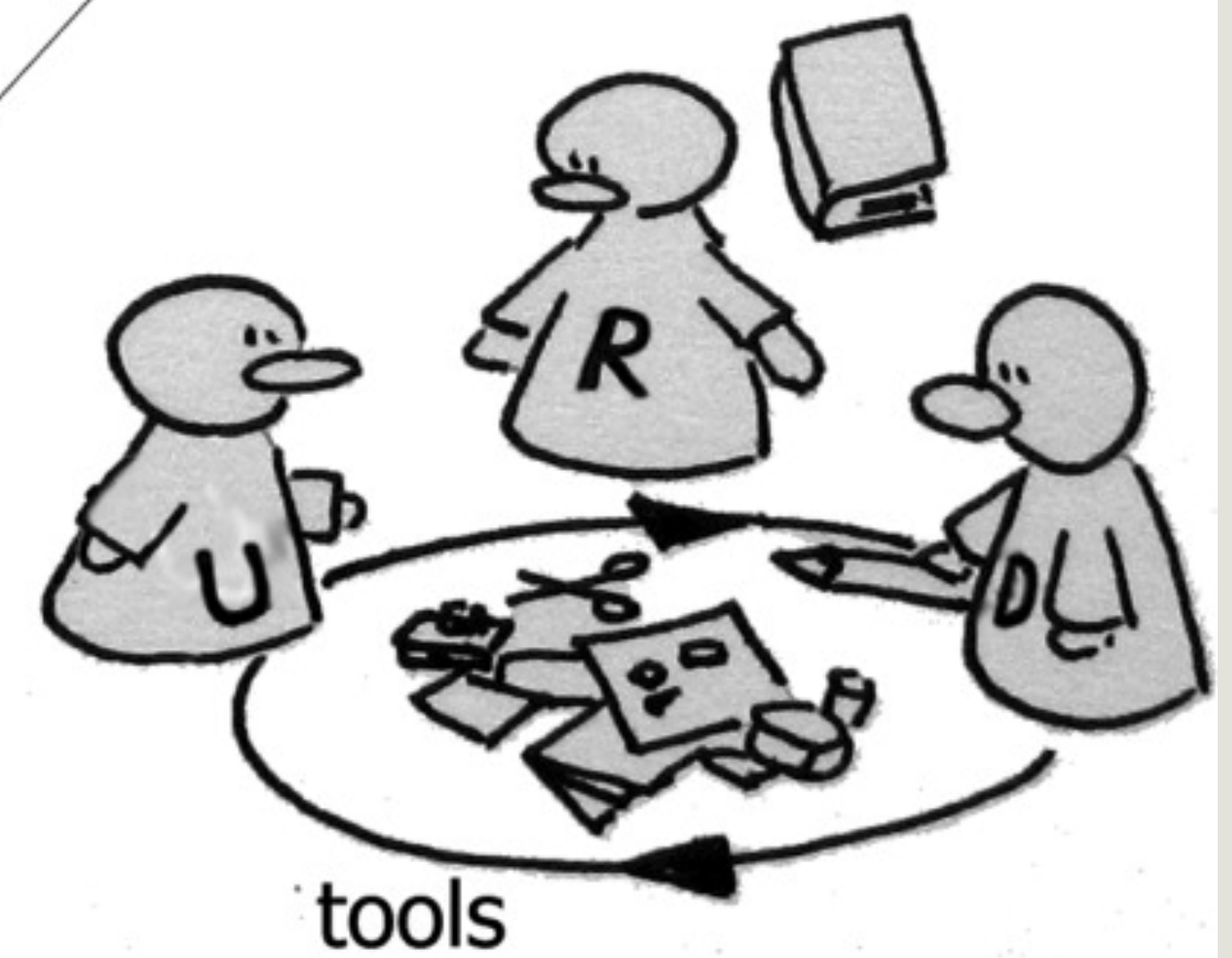
co-design + participatory design +
user-centered design + interaction design



classical



co-design



2 parameters:

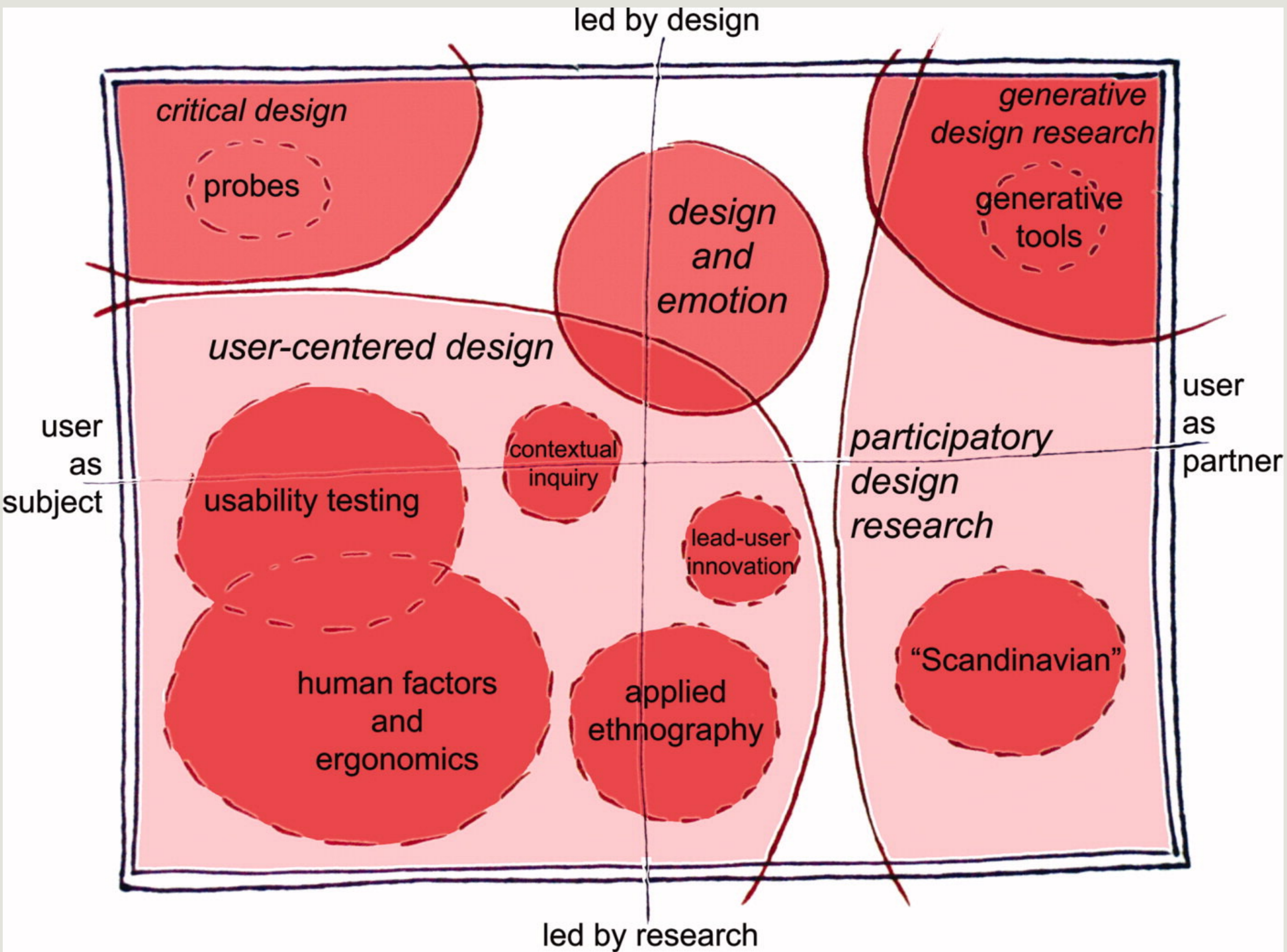
“the extent to which the process is led by
design or by research”

“the extent to which participants are seen
as *subjects* or *partners*”

2 parameters:

“the extent to which the process is led by
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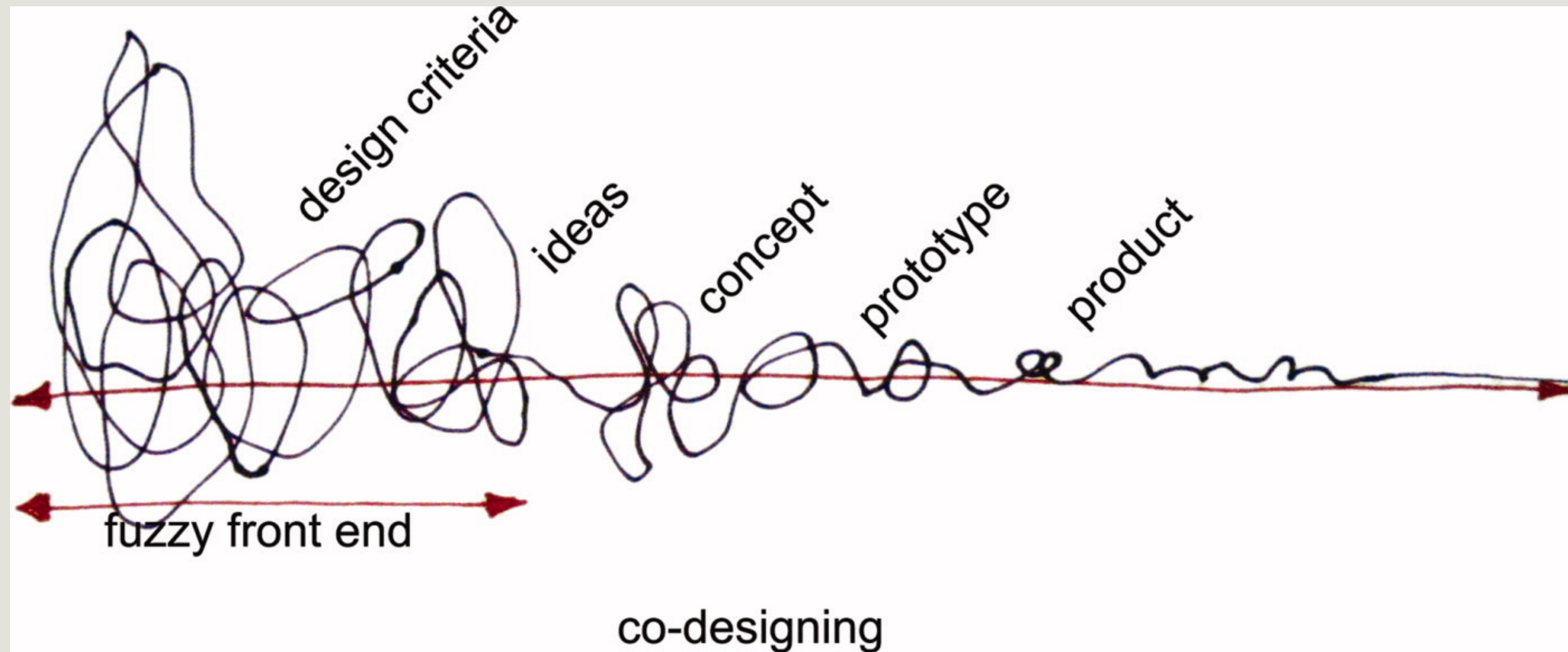
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co-design

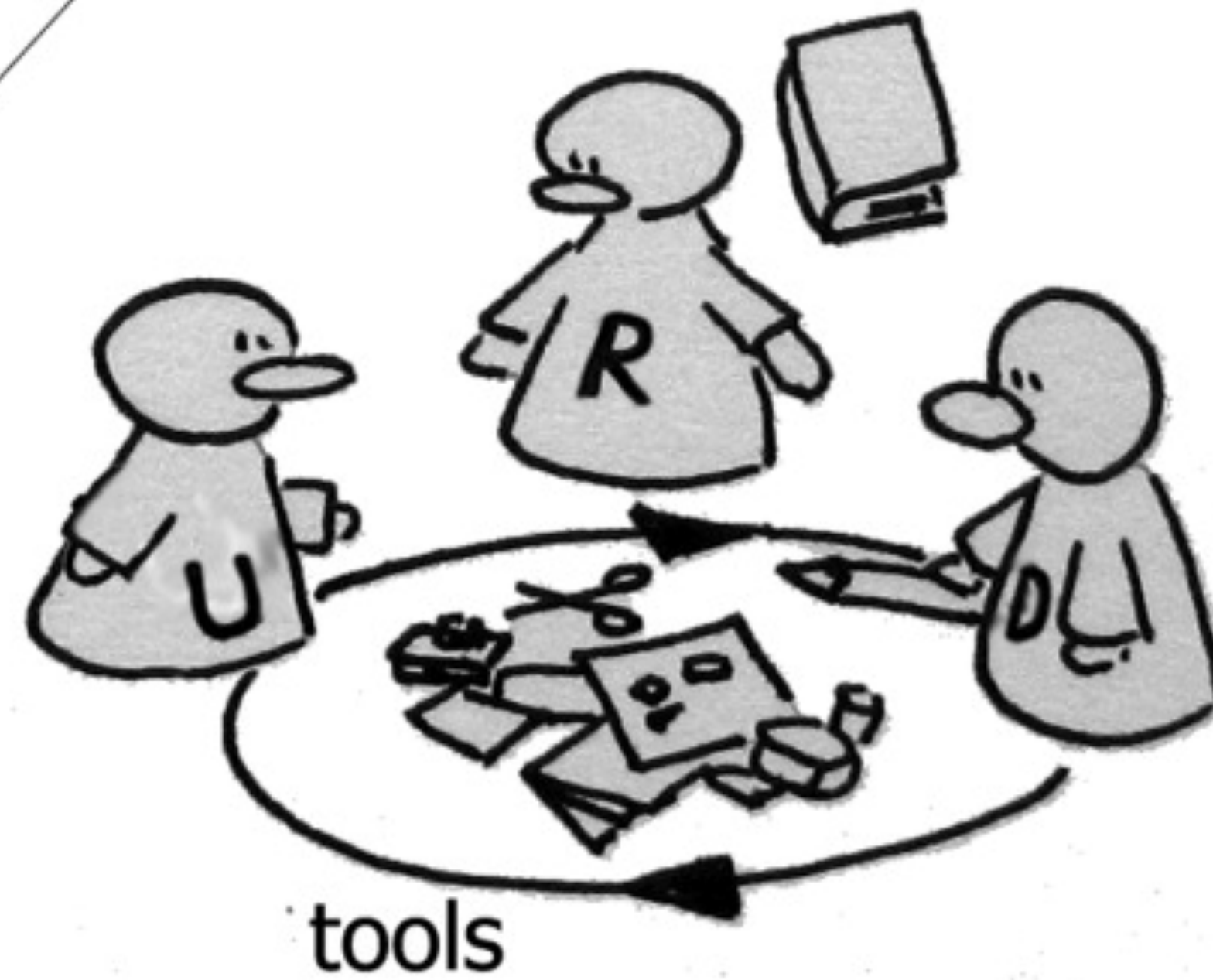
collaborative design

Figure 2. The front end of the design process has been growing as designers move closer to the future users of what they design.



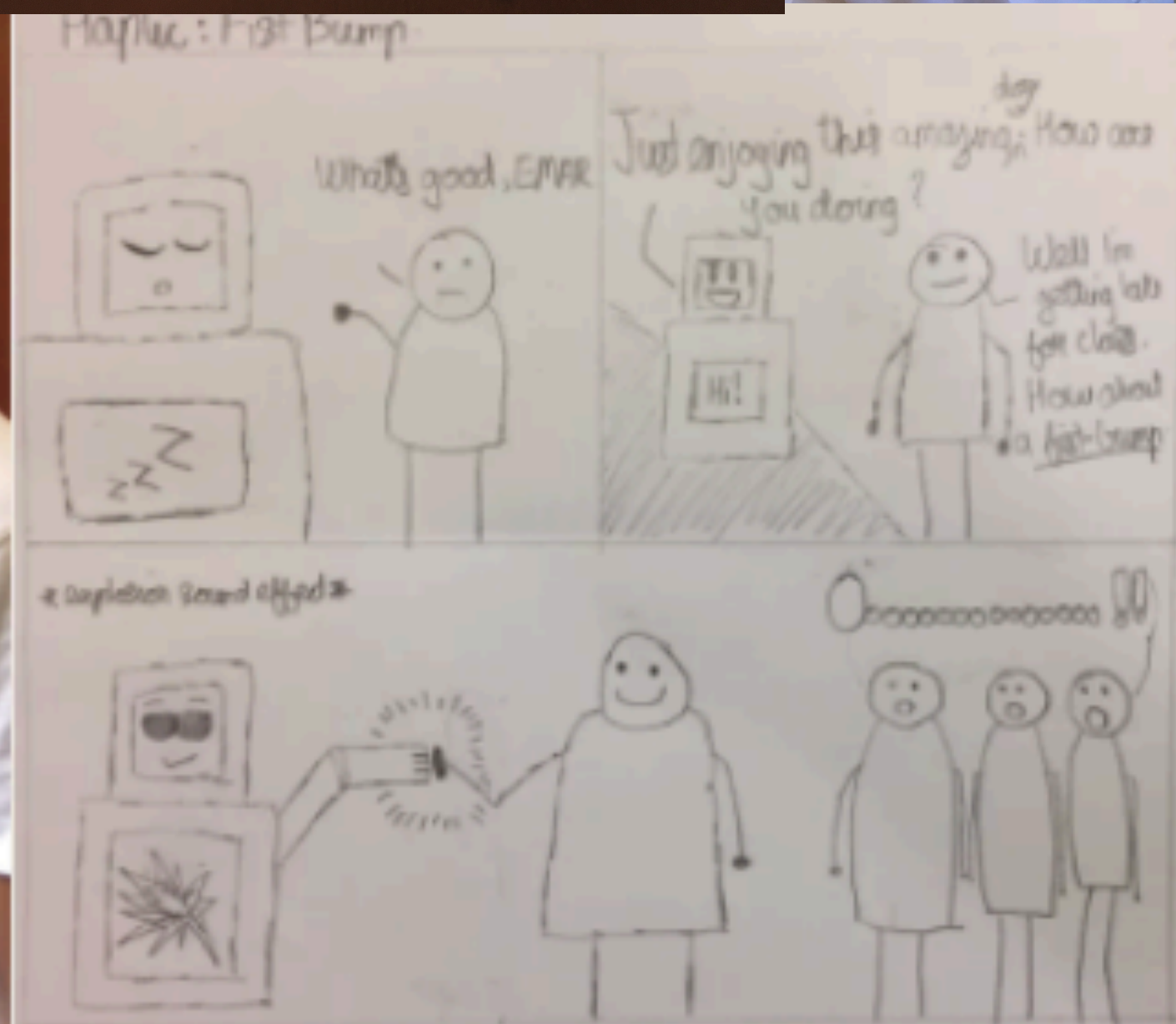
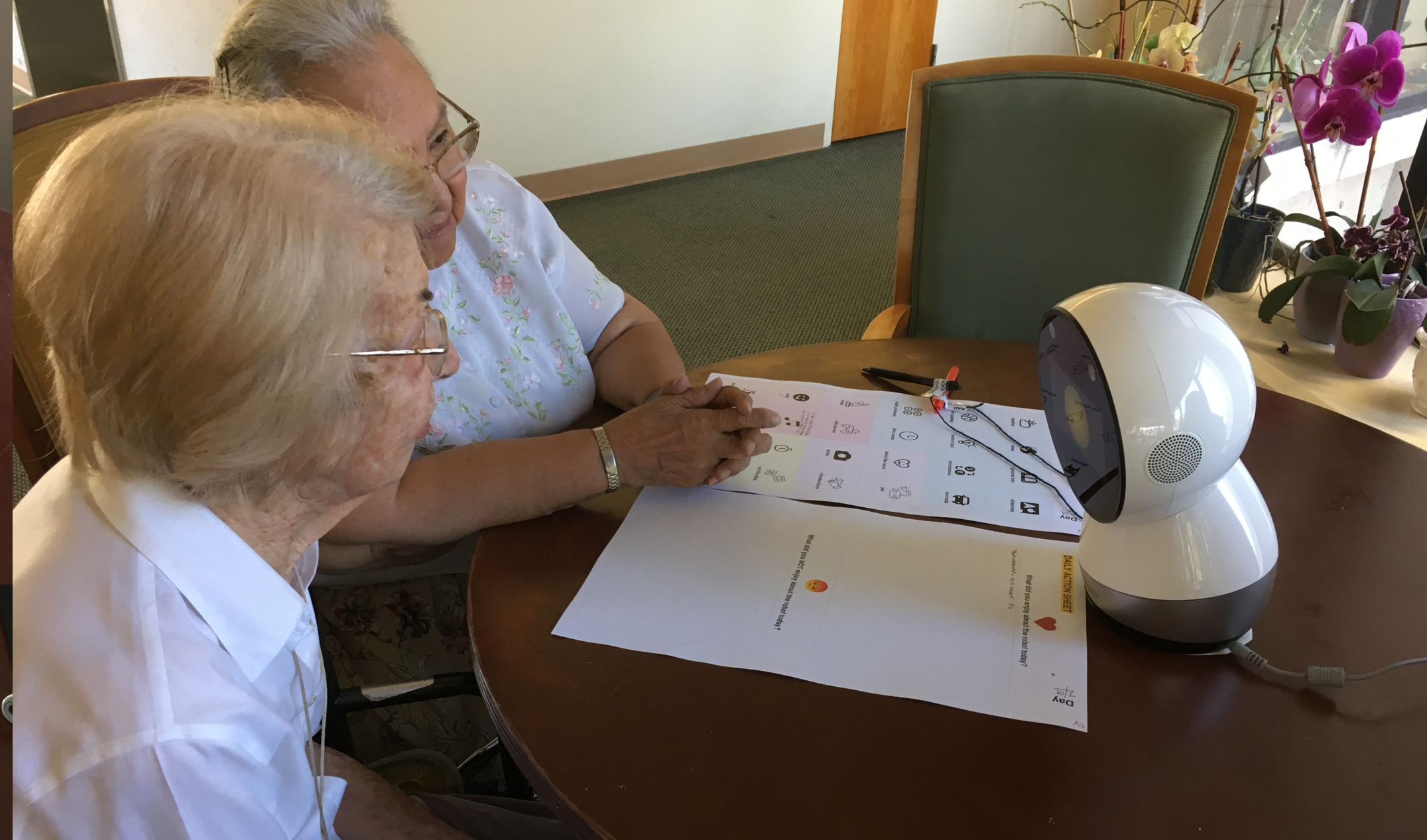
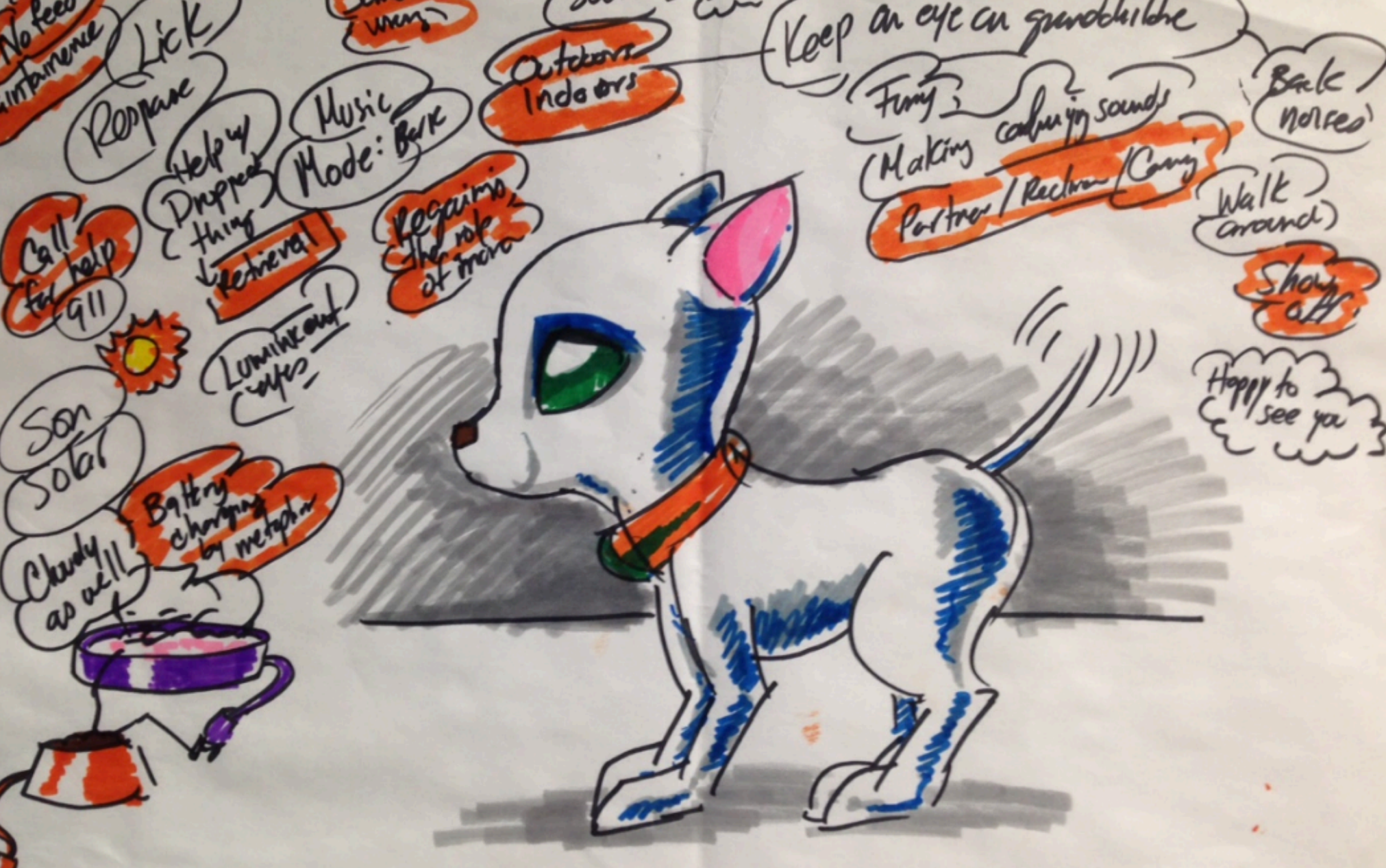
“co-designing: collaborating, including and designing
WITH
people that will use, deliver or engage with a service
product.”

co-design

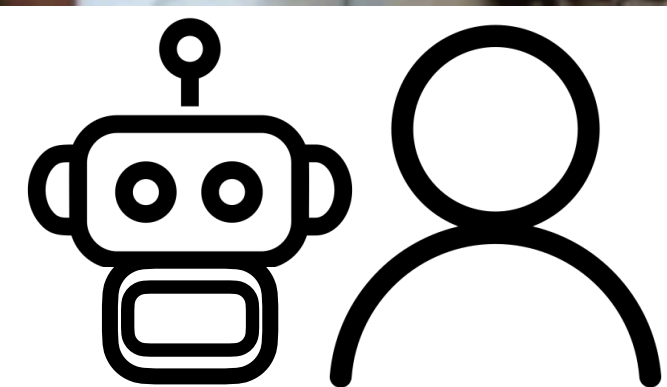


STUDY

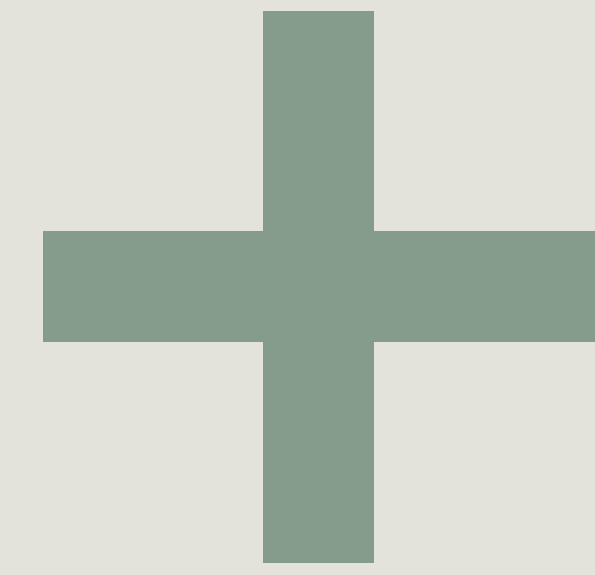
LONG-TERM CO-DESIGN WITH OLDER ADULTS



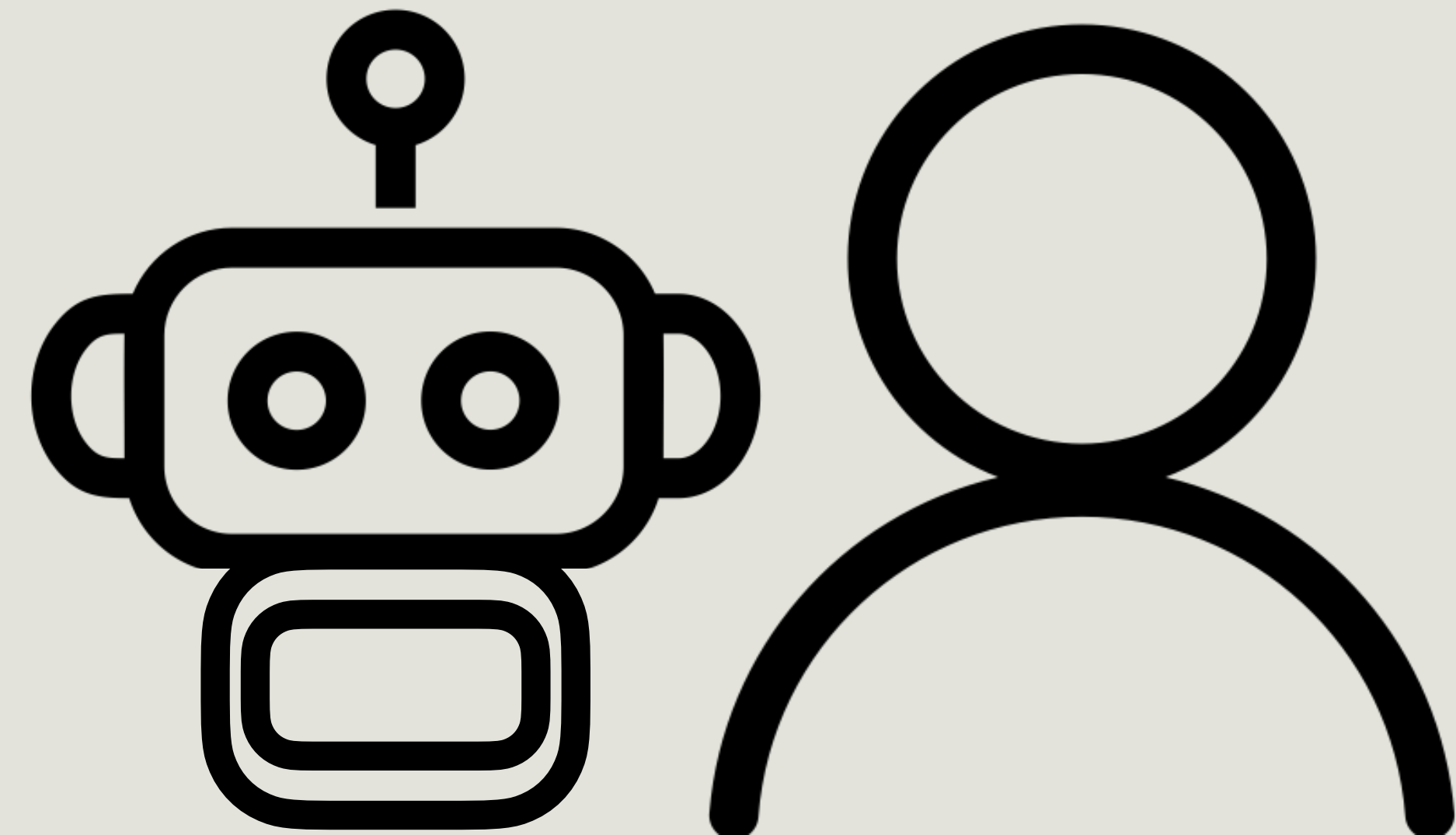
šabanović et al. (2015); lee et al. (2017); björling & rose (2019);
alves-oliveira et al. (2021); ostrowski et al. (2019)



long-term experiences
with social robots



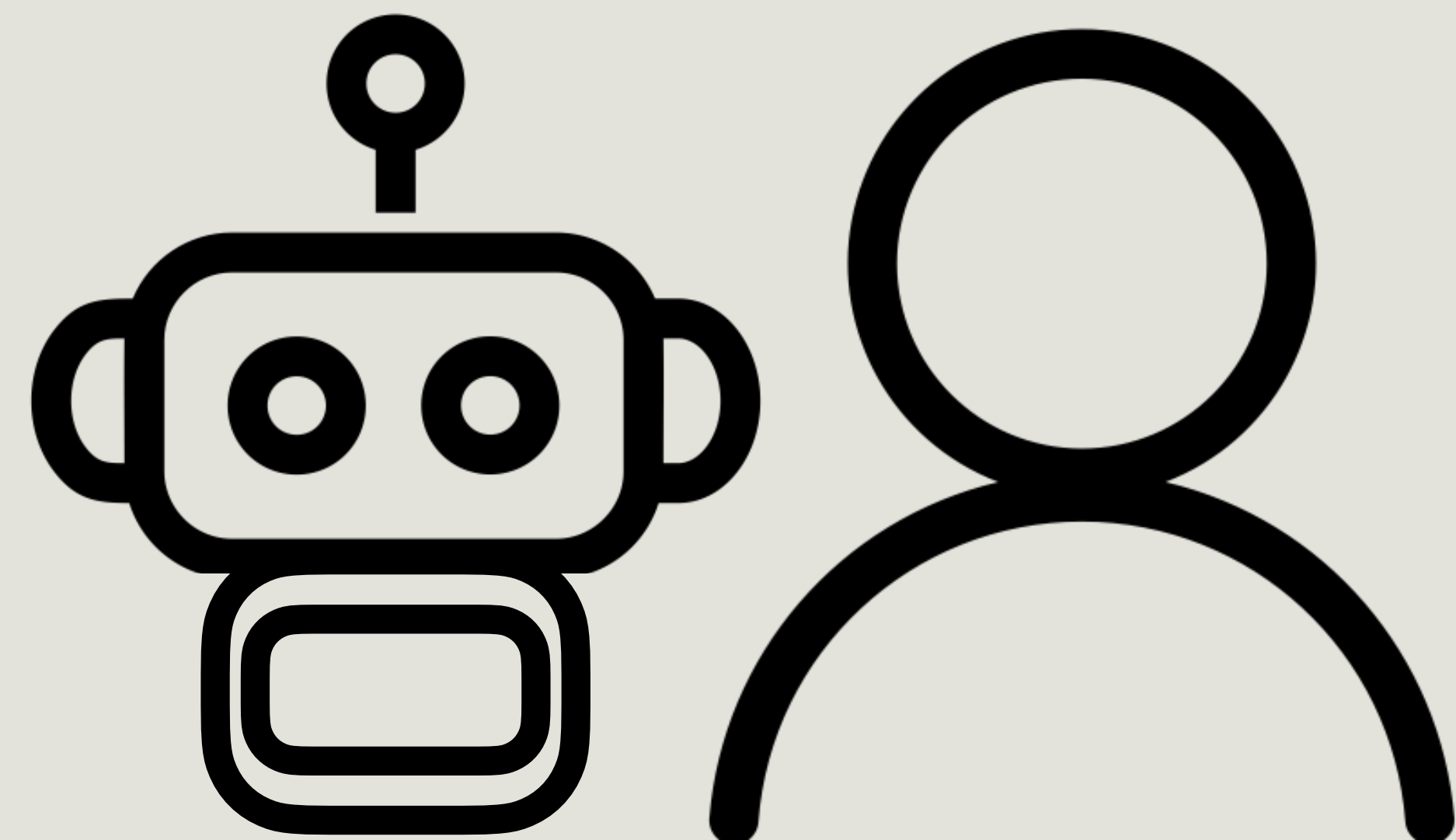
co-design



1 year co-design

28 older adults (70 to 94 years of age)

79.5 \pm 7.8 average years of age



initial interview



art-based image making



robot hosting



robot debrief



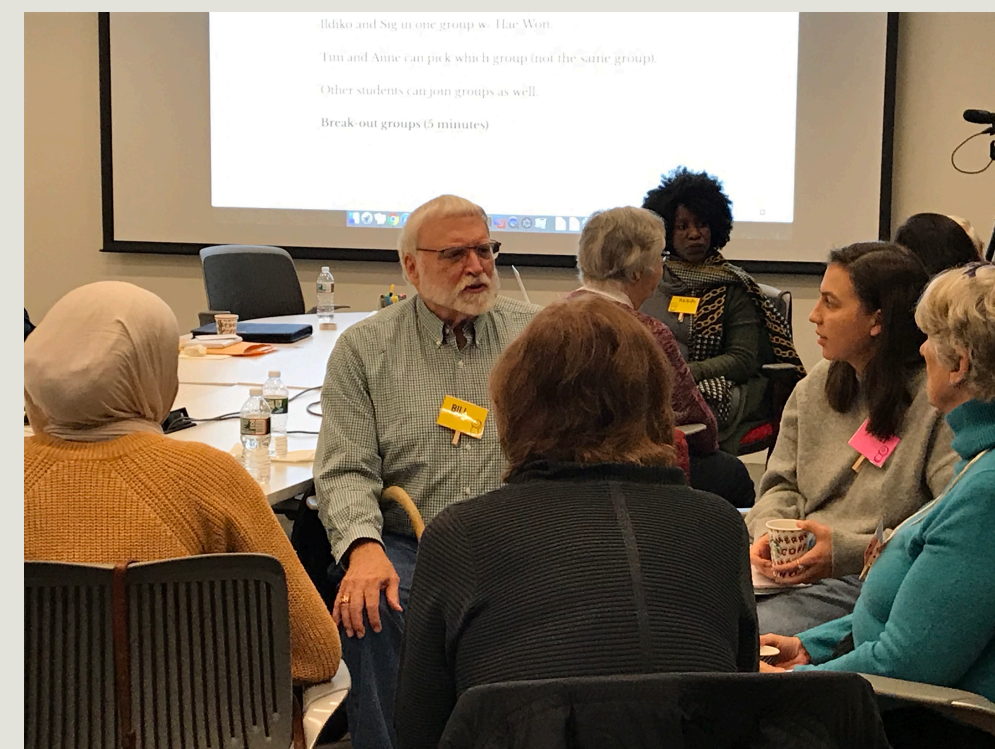
robot rapid-prototyping



design guideline generation



reflection interview



guiding design principles

scenario specific exploration 

long-term lived experiences 

supporting multiple design activities 

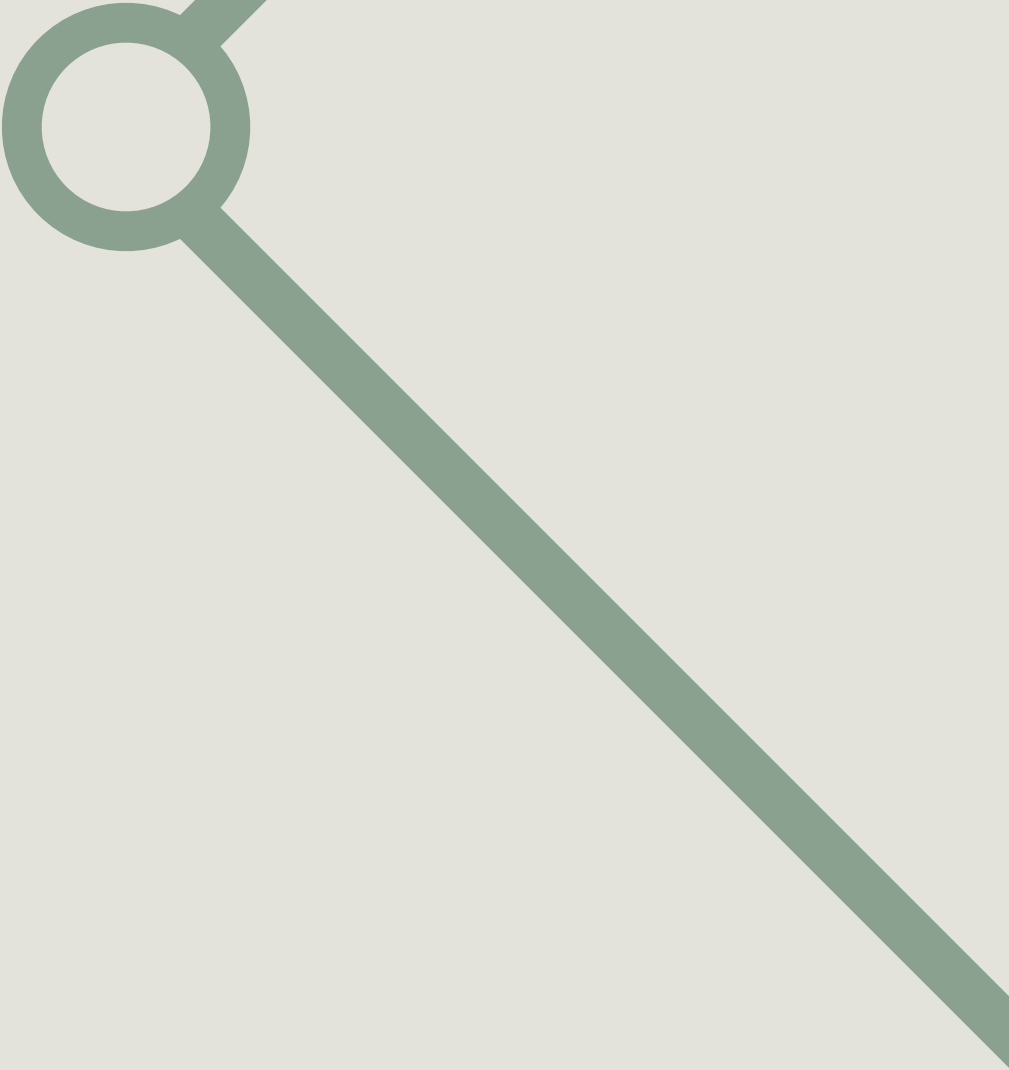
cultivating relationships 

employing divergent and convergent processes 

employing divergent and convergent processes



divergent



convergent



initial interview



art-based image making



robot hosting



robot debrief



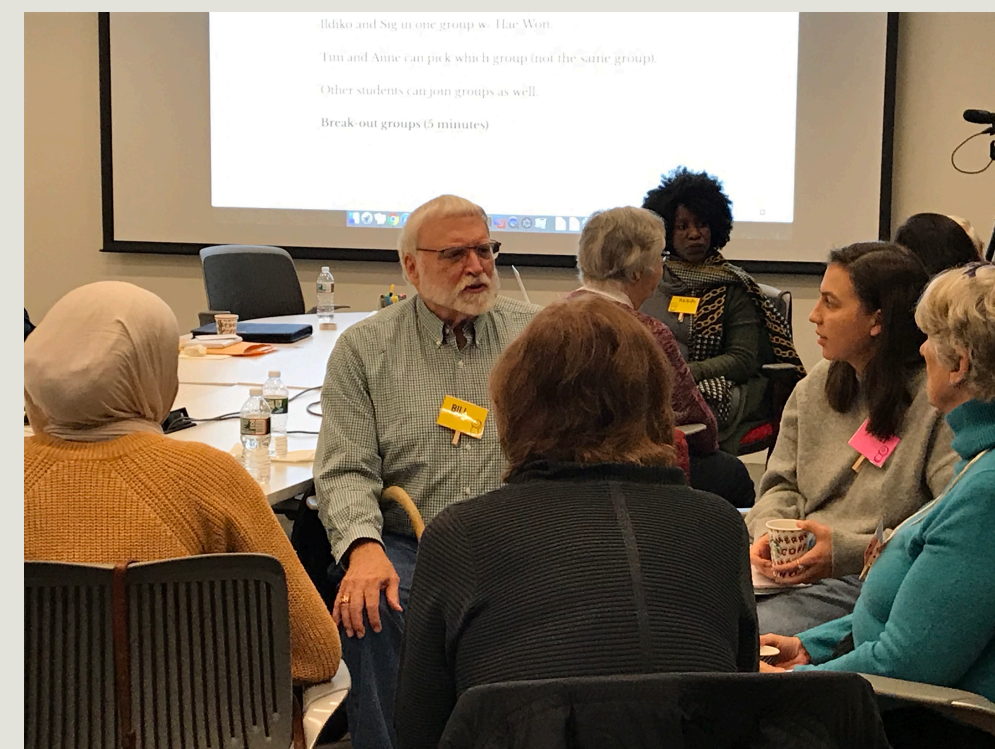
robot rapid-prototyping



design guideline generation



reflection interview



divergence

convergence

convergence
& divergence

① initial interview

② art-based image making



③ robot hosting



④ robot debrief



⑤ robot rapid prototyping



⑥ social robot
design guideline generation



⑦ reflection interview



Spring 2019

Summer 2019

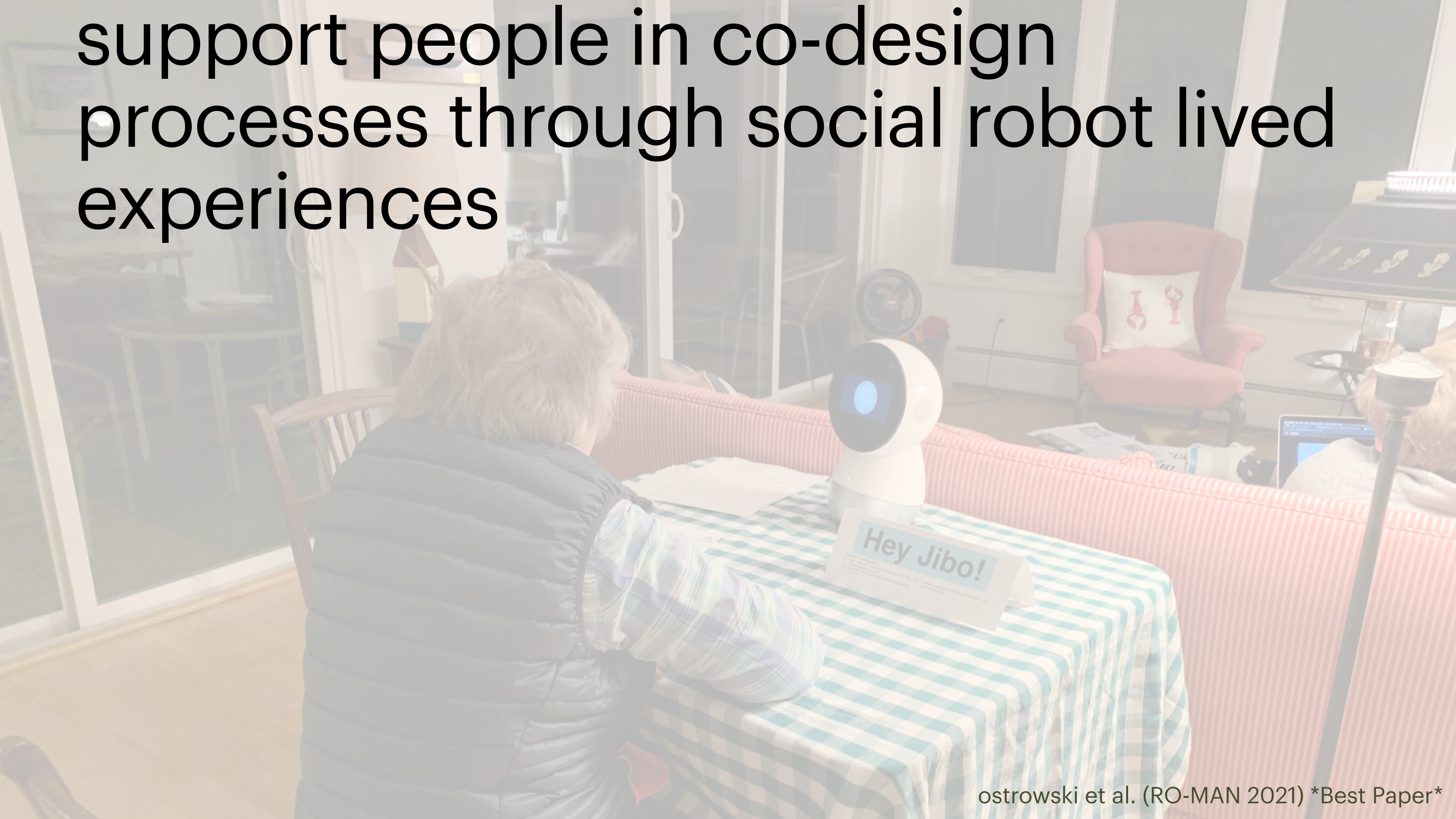
Fall 2019

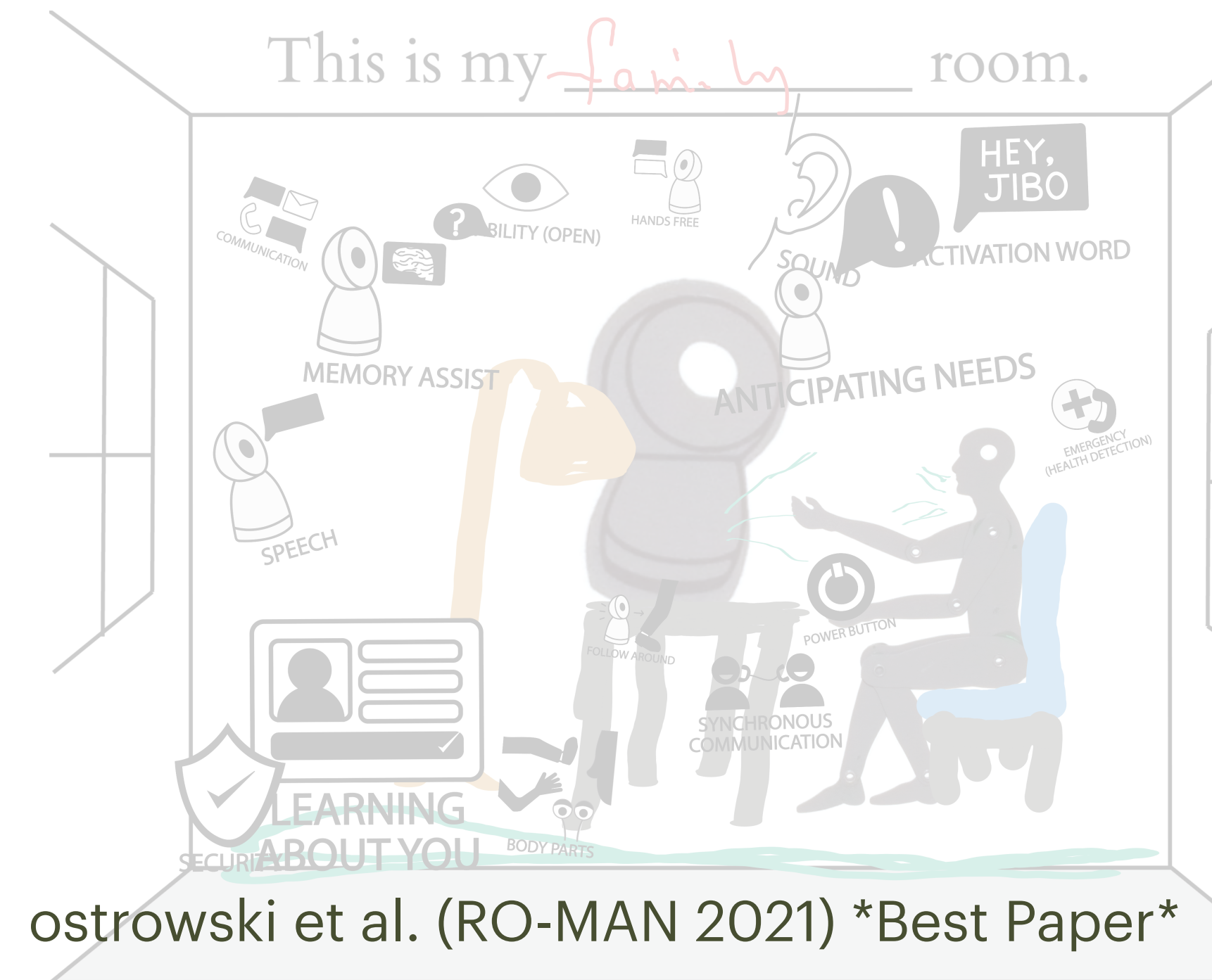
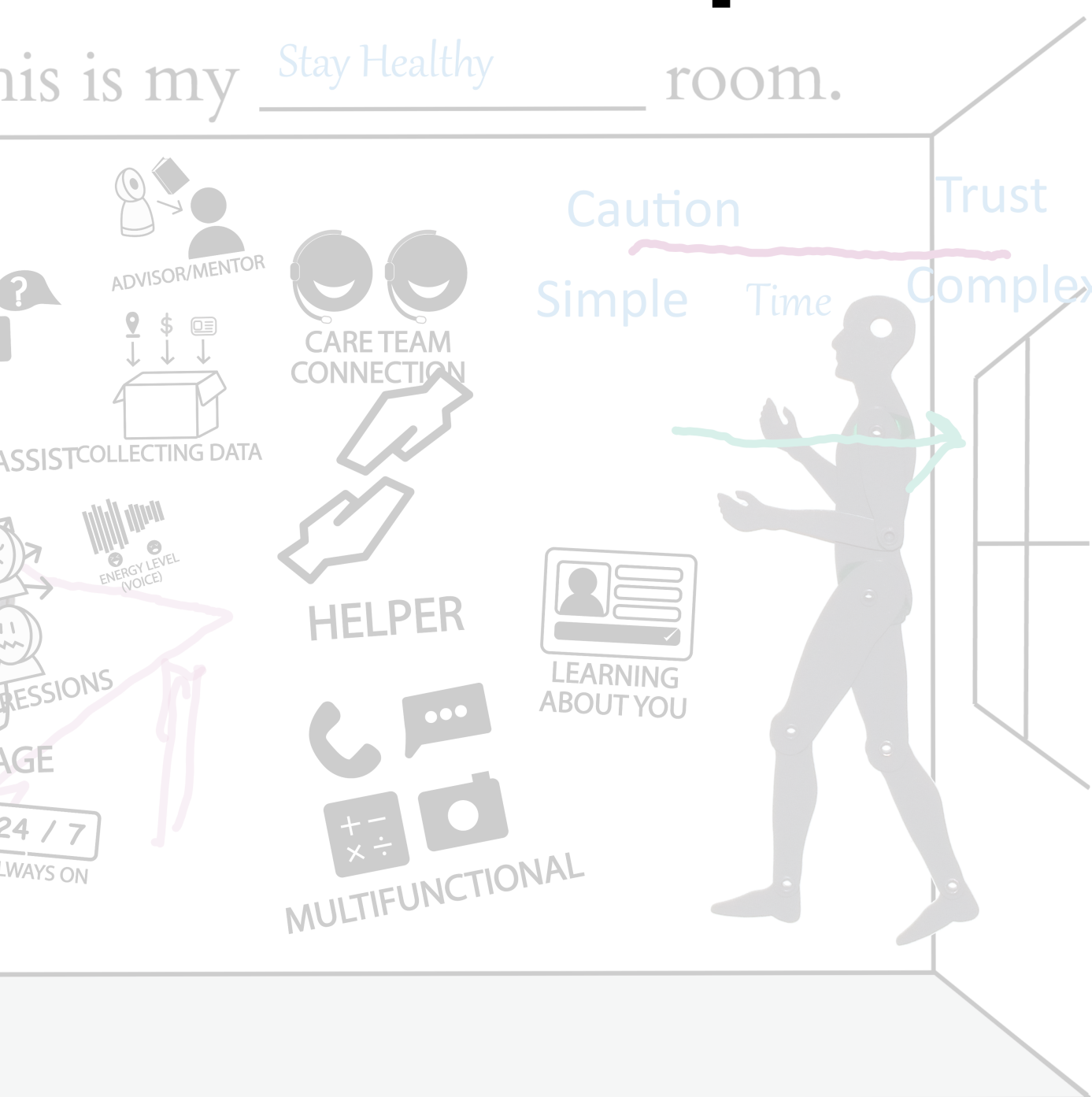
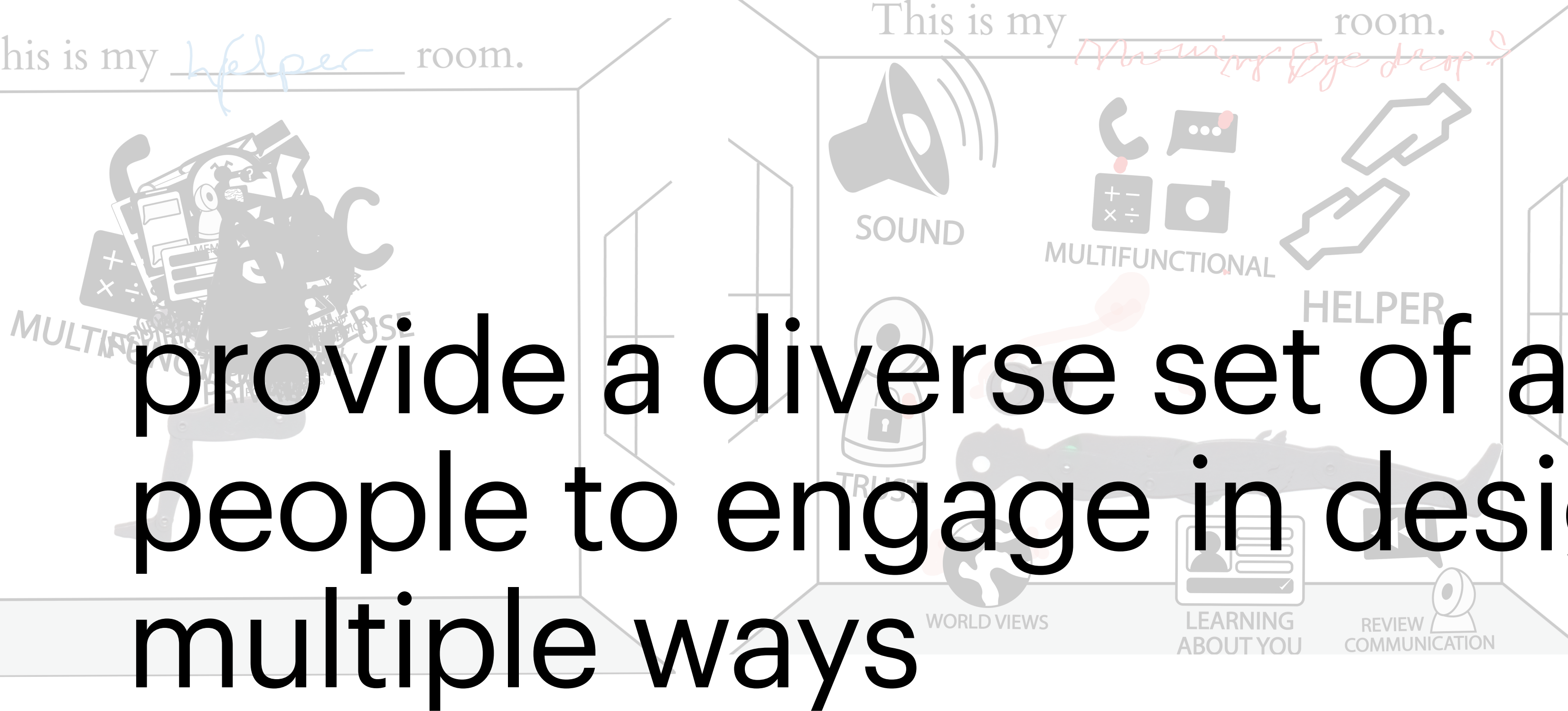
Winter 2020

10 long-term co-design guidelines



support people in co-design processes through social robot lived experiences





ostrowski et al. (RO-MAN 2021) *Best Paper*

establish long-term respectful and
mindful commitments and
relationships



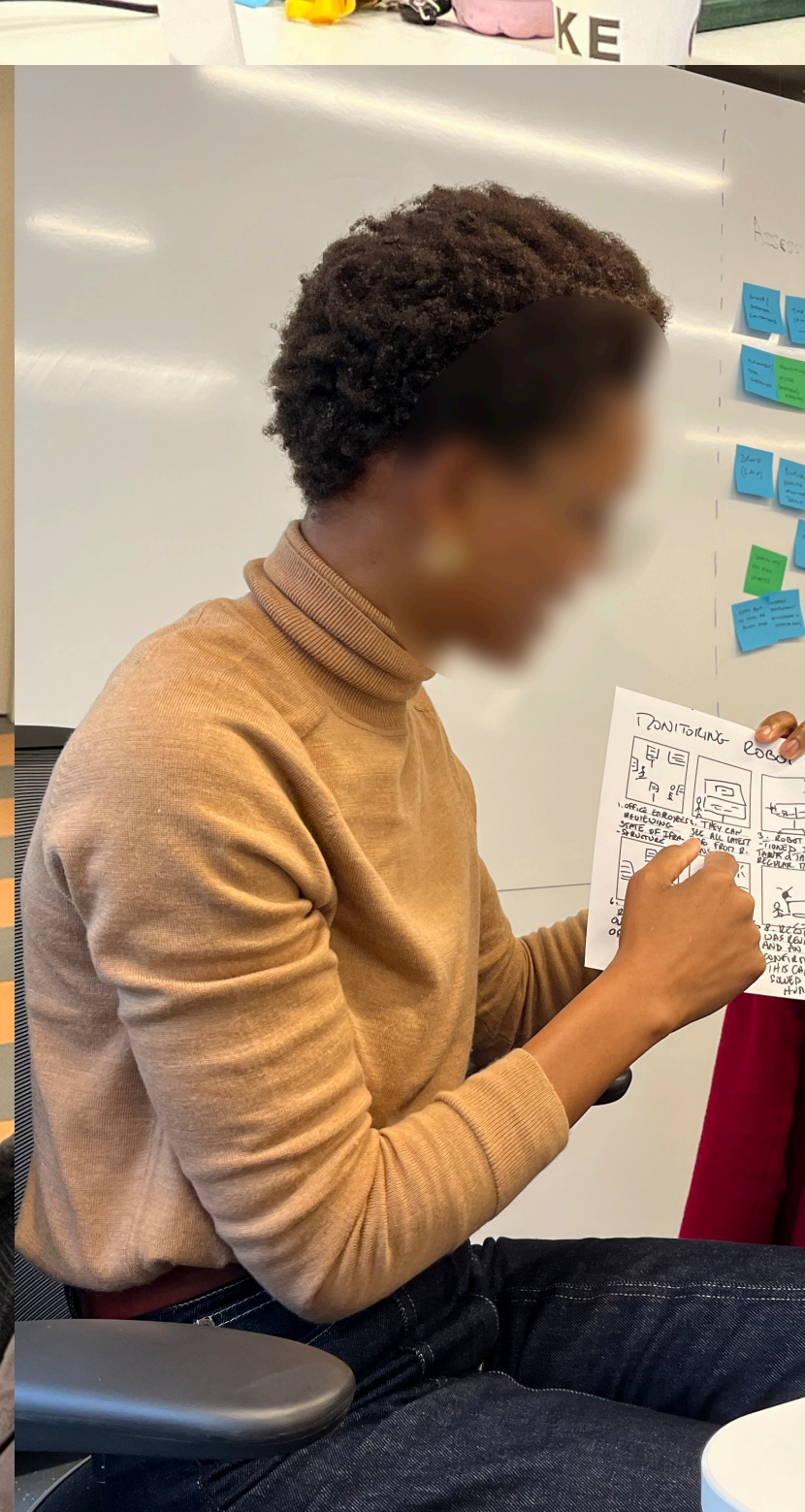
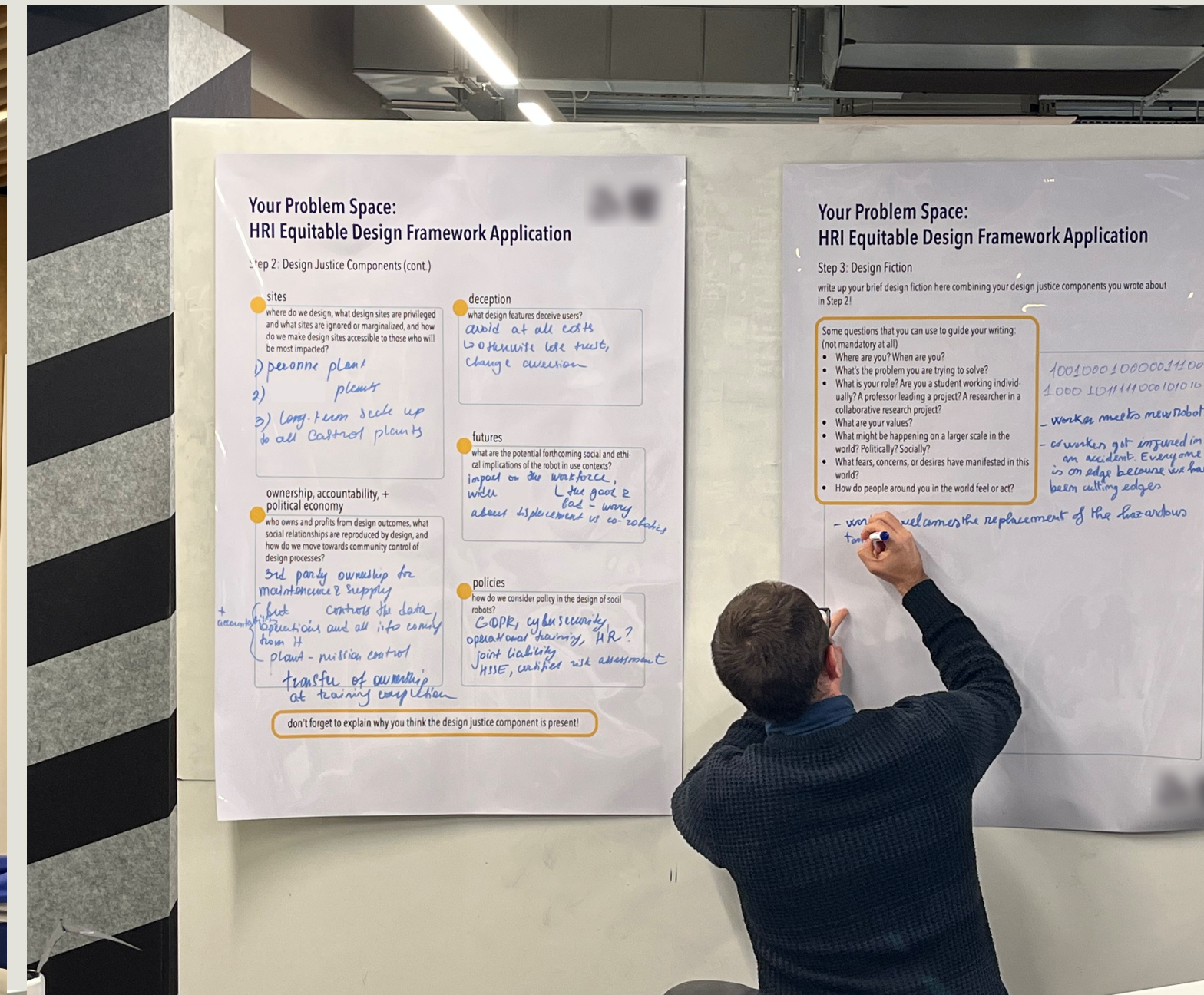
long-term co-design with older adults

created long-term co-design guidelines for human-robot interaction (HRI)

supported the value of lived-experiences with technology in empowerment of users

reshaped who is considered a robot designer

informed development of robot interactions



how should I get started collaborating with people for participatory design/co-design work?

how do I think about participant compensation?

how many people do I need to engage with?

how do I decide what to do in the design workshops/sessions?

to successfully design and implement technologies, we need to **collaborate with users and in-direct users** through design approaches that value **participation, empowerment, + lived experiences.**

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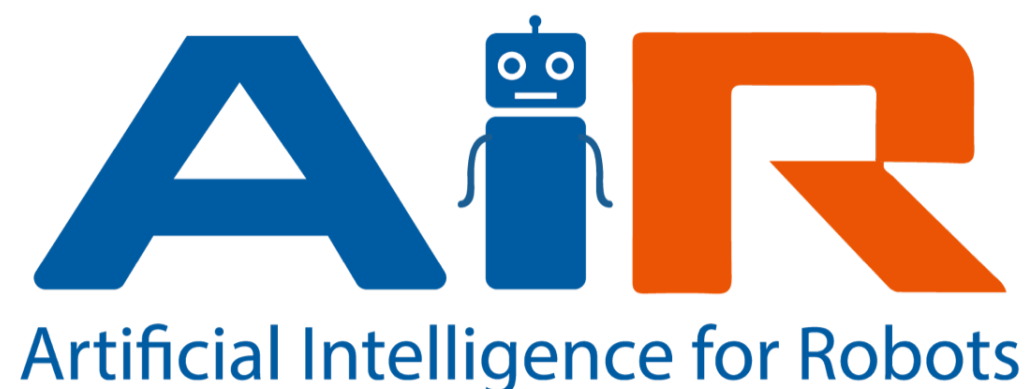


acknowledging

the co-designers

SAMSUNG

ETRI



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