Week 7: Third Wave HCI (Part 2)
Disability & Wellbeing

Chunk 1: Disability Studies & HCI

What is Disability Studies

Medical and Social Models of Disability

Case Studies

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The Societal, Cultural and Political Turn

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Case Studies: Visual Impairment

What is Disability Studies?

Critical Theory entrance into HCI

From a User-Centred Perspective: It is about bringing in the understandings, interpretations and everyday practices of the people being studies or design for

Understanding HCI from a a number of different angles

- *Linguistic*
- *Ideological*
- *Institutional*
- *Environment*
- *etc.*

What is Disability Studies?

What are our [especially non-disabled folks] assumptions about the experience of disability?

Do we view disability as, e.g.:

- A burden on the disabled individual?
- Something in need of assistance?

Should the starting point be a concern with *helping* a disabled person?

What is Disability Studies?

Disability studies [in HCI] suggests that we need to have a different starting point

Example: understanding the socio-cultural models of disability

If *you* are designing a piece of software = you are *defining* who is disabled with respect to that software

What is Disability Studies?

Disability studies = a field of critical inquiry focused on the lived experience of disabled people, and the societal, medical and intellectual policies and rhetoric concerned with disability (Mankoff et al. 2010)

Developed in around the 80s

Following disability rights movements that led to a shift:

- From the *individual/rehabilitation model* of disability to an *independent living* model (US)
- From a *medical model* of disability to a social model of disability (UK)

What is Disability Studies?

Key distinctions

Impairment: a physical or biological condition of a person
- e.g. a limb or an organ, or a function of the body is somehow negatively different

vs.

Disability: a form of exclusion propagated by society that discriminates against people who are seen as being impaired

What is Disability Studies?

Key distinctions: description of disability

Person-first language: “a person with a disability”, e.g. a person with visual impairment, a person with autism

- Objectifies disability as something that resides in the individual

vs.

Identity-first language: “disabled person”, e.g. visually-impaired person, deaf person, autistic person

- Disability is a devaluing social process imposed on the individual
- A positive assertion of identity

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Models of Disability

Beyond language and labels = how do we *define* disability

Mode of disability = how it is viewed and understood, which will impact how we design and research technology

Key models:
- Medical
- Social

- But there are others too..

Medical Model of Disability

Focuses on the physical and functional limitations a person may demonstrate

Disability is located in the individual linked to medical diagnosis

Pragmatic, actionable, with measurable results for fixing an impairment

Assistive technology “fixes” shortcomings of the disability, e.g.

- Improve typing speed
- Screen-readers
- Personal augmentative communication devices

Social Model of Disability

Focuses on the barriers imposed by the social and cultural environment that contribute to disabling a person

Disability is located in the social environment not in the impairment

Addressing disability = fixing society, attitudes, built environment, policies, etc.

Assistive technology considers the broader context of interaction and use

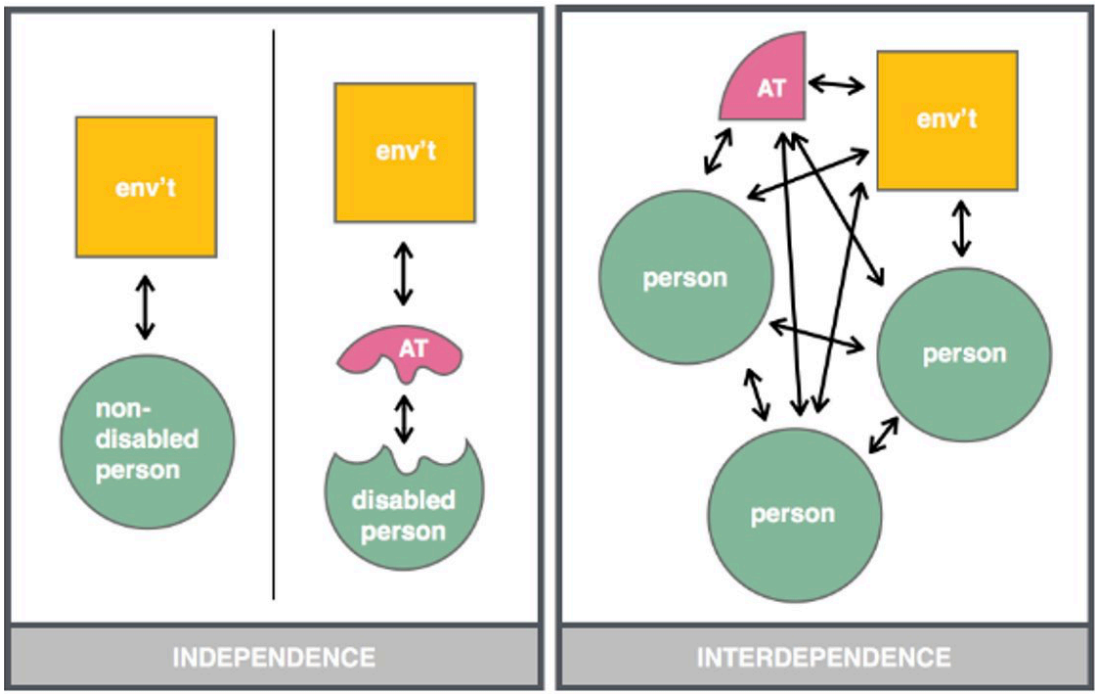
Critique of Medical and Social Models

Social model: is the locus of disability truly in society?
- Invalidating experiences of impairment?
- The need for medical treatment?

Medical/social model:
- Impairment *can be* a social construction
- Normality is the goal?
- Should we eliminate disability?

Both ignore the potential the positive aspects of disability experience, e.g.:
- Common community and culture
- Pride in one's individuality

Critique of Medical and Social Models



Complementing traditional views on "independence"

Independence is a "myth"

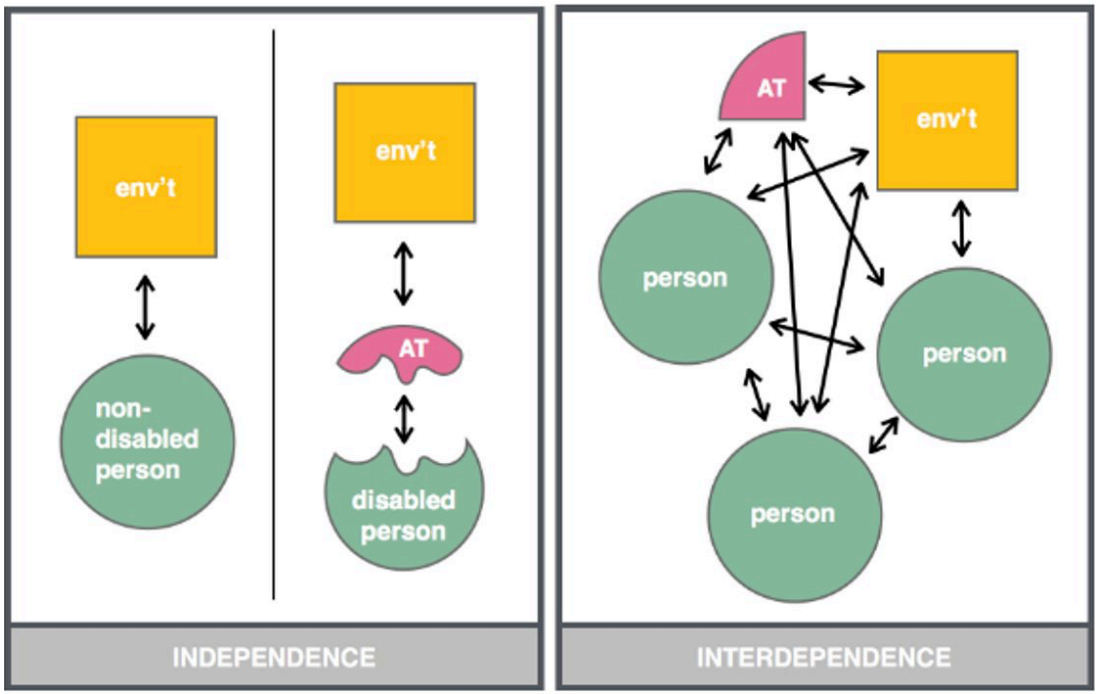
People rely on each other

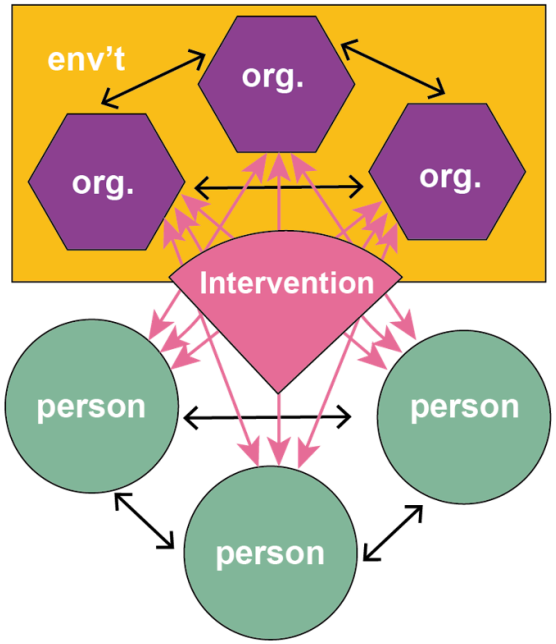
"Access" is achieved collaboratively

Disabled people contributed to that collaboration

Bennett, C. L., Brady, E., & Branham, S. M. (2018, October). Interdependence as a frame for assistive technology research and design. In *Proceedings of the 20th international acm sigaccess conference on computers and accessibility* (pp. 161-173).

Critique of Medical and Social Models





Beyond individual interdependencies, there are organisational, environmental factors impacting interactions between people with and without dementia

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Autistic Children in Mainstream Education

Individual with autism, demonstrate enough observable different in social behaviour from the norm

Education as cultural transmission

- knowledge, skills, attitudes, values, etc.

Autistic children taught “how to think, act and feel” like people who are not autistic

Explicit cultural transmission

- Because using traditional means can be challenging

Autistic Children in Mainstream Education

Autistic children learn rules of being “normal” but not internalise those rules

- Example assistive technology: visual communication, social stories

Technology to make autistic children communicate like neurotypical (NT) children

- Ignores autistic children view of NT’s communication; e.g. over-demanding

Switch goals: support NTs in learning how to communicate with autistic children

Hayes, G. R., Hirano, S., Marcu, G., Monibi, M., Nguyen, D. H., & Yeganyan, M. (2010). Interactive visual supports for children with autism. *Personal and ubiquitous computing*, *14*(7), 663-680.

Blind Children in Mainstream Education

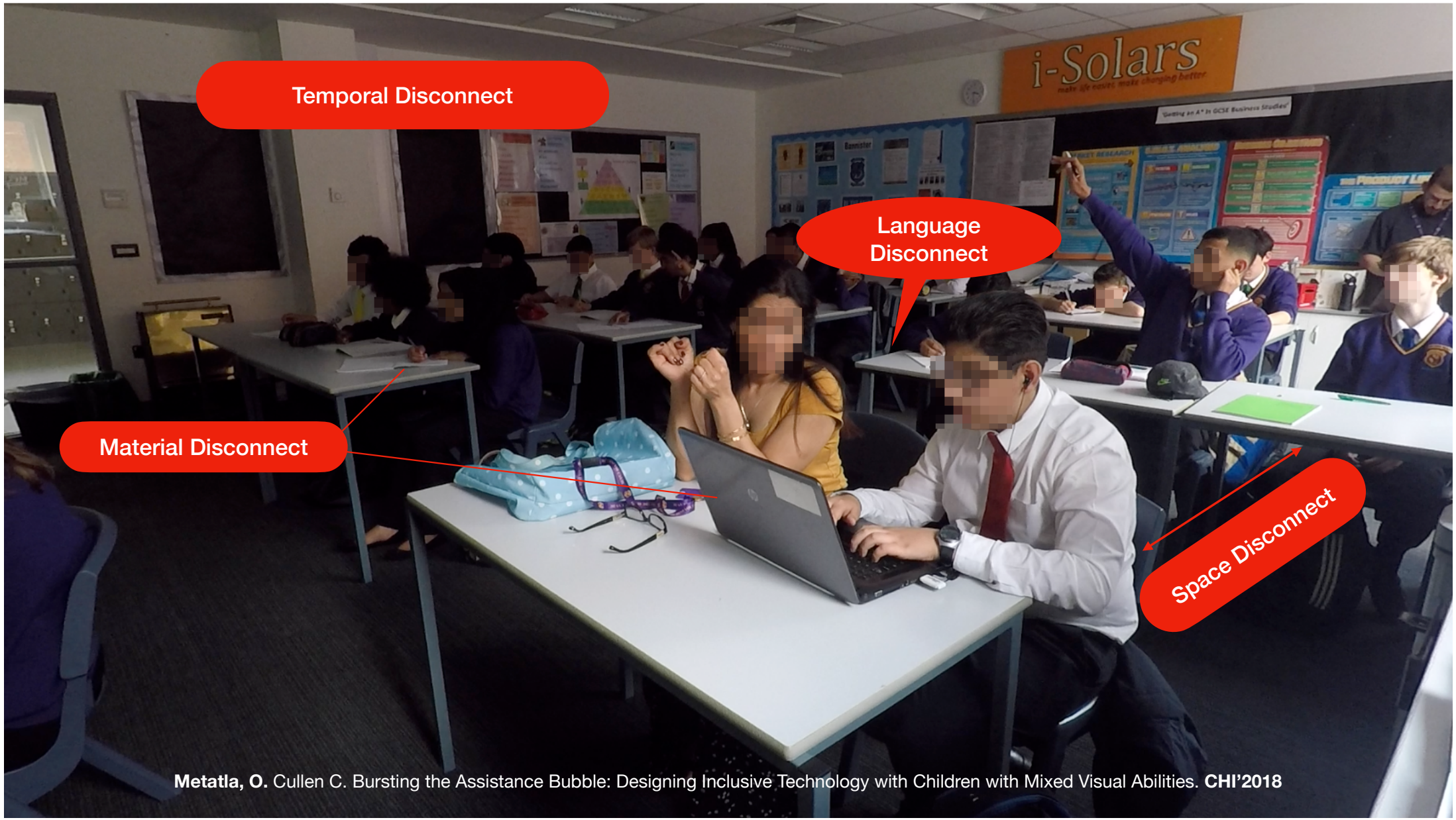
25,000 children with visual impairment in the UK

70% in mainstreams schools

1-2 children in a class of 30 sighted peers

Assistive technology: screen-reader / magnifier, Brailler, tactile graphics, etc.

Teaching assistant

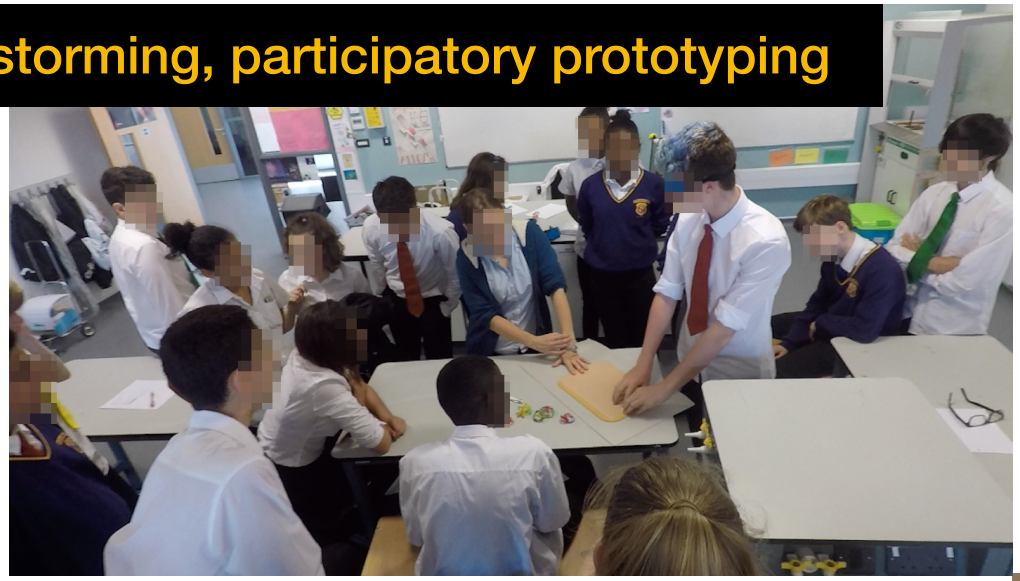


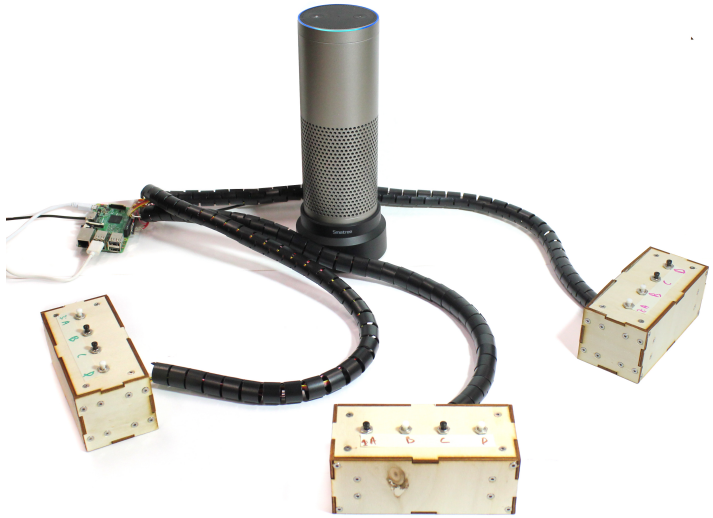
Metatla, O. Cullen C. Bursting the Assistance Bubble: Designing Inclusive Technology with Children with Mixed Visual Abilities. **CHI'2018**

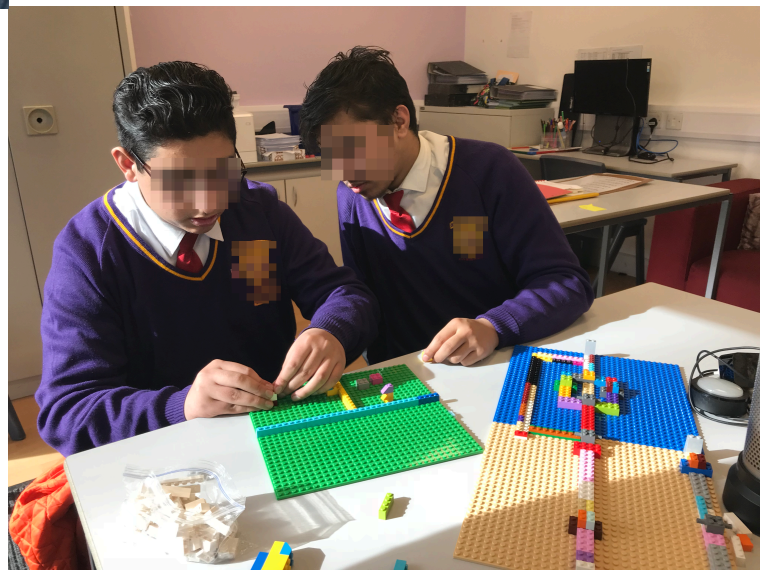
Teaching Assistant Bubble

Metatla, O. Cullen C. Bursting the Assistance Bubble: Designing Inclusive Technology with Children with Mixed Visual Abilities. **CHI'2018**

Bodystorming, participatory prototyping





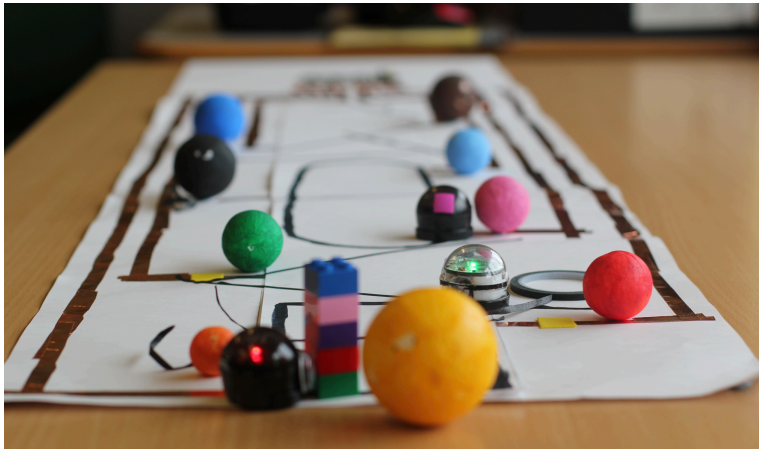


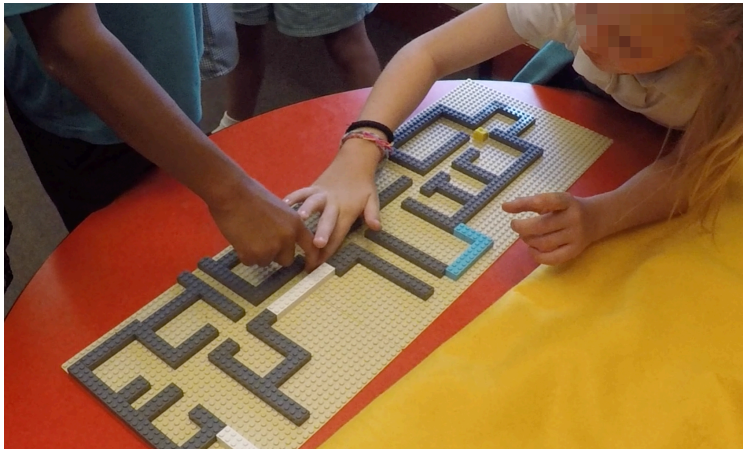
Metatla, O. *et al.* Voice User Interfaces in Schools: Co-designing for Inclusion with Visually Impaired and Sighted Children.
Best Paper Award, SIG**CHI'2019**

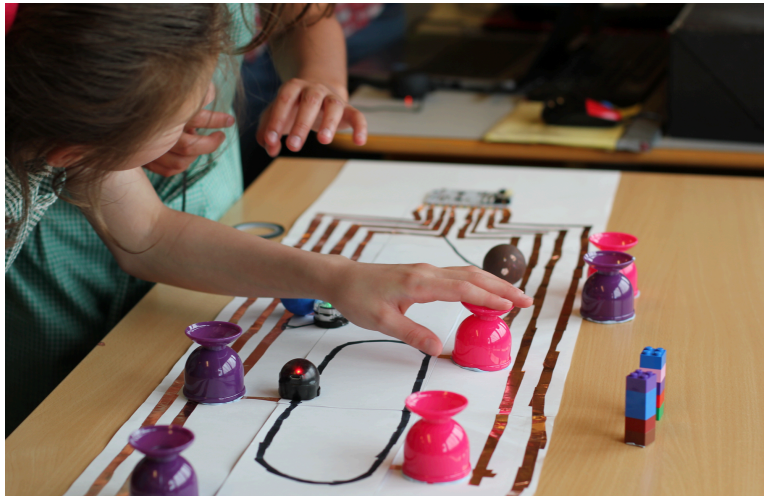
Design fiction, inclusive coding

Metatla O., *et al.* Robots for Inclusion: Co-designing an Inclusive Game with Visually Impaired and Sighted Children, SIG**CHI'2020**

Inclusive social play







Metatla O., *et al.* Robots for Inclusion: Co-designing an Inclusive Game with Visually Impaired and Sighted Children, SIG**CHI'2020**

Inclusive social play

Assistance behaviour

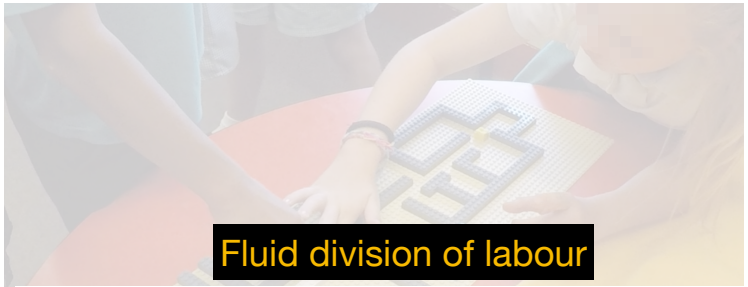
S **Caroline:** *right, I'm going to place it down, and Peter you can put your finger where my finger is, see it? run it down the middle like that* [shows Peter how to run his finger over the tape]

VI **Peter:** [runs index finger over the tape]

S **Caroline:** *so now hopefully it should* [places robot on tape]

S **Meryem:** [points to the robot as it moves]

All: *yay!* [everyone applauds, robot arrives at target]



Fluid division of labour

S **Cian:** *let's do the final one*

S **Richard:** *yes! We can go over* [over the antagonist robot path]

VI **Peter:** [holds the two cups that designate the starting and target points]

S **Cian:** [prepares the tactile tape and places it down near Peter's left hand] *this should be easy enough then*

S **Richard:** *right, ready?* [holds other end to launch robot]

S **Cian:** *wait I need to put more tape down*

VI **Peter:** *let me* [grabs robot and positions it on the tape with left hand, keeps right hand on destination cup]

S **Cian:** [finishes taping the path] wait does this [the antagonist robot] stay blocked?

S **Richard:** *yes, yes, yes*

VI **Peter:** [follows robot by with left hand on top until it reaches destination, shouts:] *we found it!*

VI **Peter, Cian:** [lift cup together and reveal the planet]

Metatla O., *et al.* Robots for Inclusion: Co-designing an Inclusive Game with Visually Impaired and Sighted Children, SIG**CHI'2020**

In Summary

Disability studies push us to reflect more deeply about disability as a human phenomena

Social-cultural perspective of disability and impact on HCI in general and assistive technology in particular

Medical-model driven tech’s shortcomings

Alternative models = more inclusive technologies

Next...

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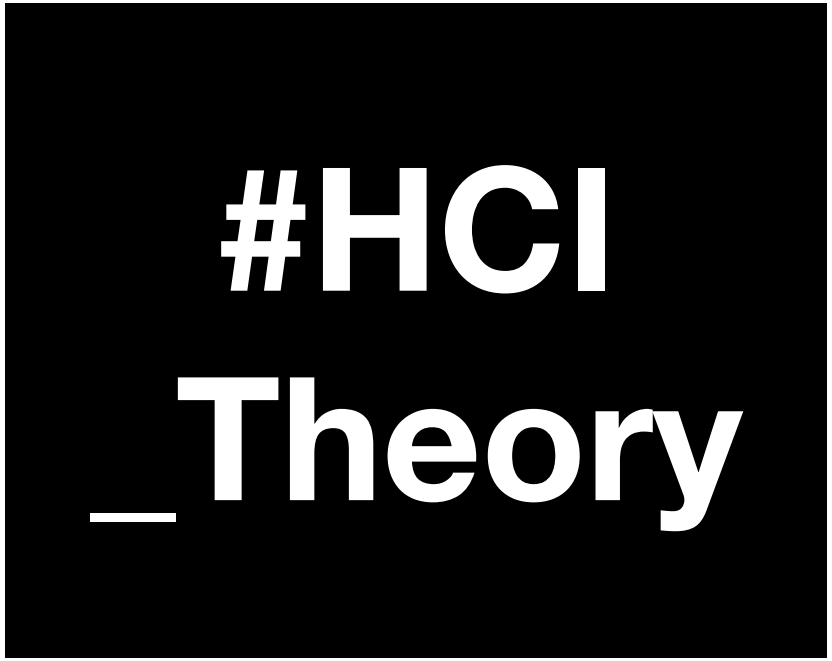
Chunk 2: Wellbeing Tech in HCI & CSCW


#HCI
_Theory