“Is Universal Design Dead?”: Creating inclusive user experience design methods

ARMSTRONG Helen*a; GUFFEY Elizabethb; NICKPOUR Farnazc and WILLIAMSON Bessd

aNorth Carolina State University
bPurchase College State University of New York
cUniversity of Liverpool
dSchool of Art Institute of Chicago
*a Corresponding author e-mail hsarmstr@ncsu.edu

By 2050 there will be more people over age 65 than under 5 in developed countries (United Nations, 2015). The question is not “are you disabled” but “when will you be disabled.” Simultaneously, we are seeing a shift away from the precepts of Universal Design toward a more flexible and inclusive paradigm. Sometimes labelled “design for one,” the latter builds on the heritage of barrier-free design, but aims not for design for all, but one size fits one. Our research methods should acknowledge these changes. While differentiation and customisation to individuals—via emerging technologies such as Machine Learning—is increasingly the “new norm,” our current
user-centred design tools presume user abilities in vision and motor dexterity. They lack inclusion. This Conversation will begin by assessing and discussing existing user-centred design methods in relation to users with disabilities. This Conversation will then broaden the discussion to consider Universal versus Inclusive Design. More specifically, how does our reconsideration of user-centred methods reflect a larger shift toward designing for unique users? What impact do emerging technologies like Machine Learning have upon these approaches? How can adaptive strategies for co-design be applied to a range of users that fall upon a spectrum of impairment?

*Keywords*: Inclusive design; user experience methods, universal design; co-design; accessibility; disability; design for all; psychosocial inclusion

1 **Organising question(s) or provocation(s)**

Overarching question: Is Universal Design dead and what are the implications of newer paradigms for our research?

Sub-questions:

1. How do we augment existing or develop new methods for research to meet our changing understanding of disability and the growing needs of our users?
2. How can we leverage new technology to open up possibilities not only for adaptive and responsive designs but also adaptive and responsive user-centred design methods?
3. How might we move/push beyond the current archetypes of design for inclusivity, embracing the more contemporary, complex and critical contexts and challenges?

2 **The Conversation**

*Figure 2 Inclusive Design Discussion*
2.1 **Structure of Conversation**

Each convenor introduced their research and identified one barrier and one opportunity in regard to inclusive design. Following the convenor introductions (summarised below), participants moved between four stations in the room. Each station asked the participants to discuss and document their responses to a specifically provided query. All four participant groups moved between the provided stations over the course of the Conversation. A convenor recorded the discussion at each station as it occurred. After these small group discussions ended, all the participants came together for a final wrap-up discussion.

2.2 **Part One: Summaries of Convenor Research Introductions**

2.2.1 **Helen Armstrong**

Helen Armstrong is a design educator, author, and researcher who explores the potential for emerging technology to make data more accessible to users with Impairments. Armstrong introduced recent user-centred industry partnerships and larger grant projects that focused on designing intelligent interfaces that might detect and respond to unique user needs.
I’m working at NC State to integrate inclusive design into our core design curriculum. My research focuses on designing interfaces that respond to the unique needs of users with disabilities. My projects have included working with SAS Analytics to create accessible data visualisations for blind/low vision users. Working with North Carolina Museum of Natural Sciences to use technology to generate exhibition spaces that welcome adults on the autism spectrum. Working with a team of astronomers, designers and computer scientists on the iData grant project to make astronomy data accessible to blind/low vision high school students, and—most recently—working the IBM Watson Health team via our first year Masters of Graphic Design students—some of whom are here today—to consider how Machine Learning might be used to meets the needs of Deaf/Hard of Hearing and Blind/Visually Impaired users. Machine Learning has increasingly become a focus, particularly in ways that it might be used to detect and respond to unique user needs.

- **Identified barrier:** Many user-centred design research tools presume user abilities in vision and motor dexterity.
- **Identified opportunity:** How might we use ML to detect and respond to unique user needs?

2.2.2 **Bess Williamson**

Bess Williamson is a historian who focuses on the intersection of design and social movements of the 20th-21st centuries. Her book Accessible America: A History of Disability and Design will be published in early 2019 from NYU Press.
My research examines the ways that designers come to know disability, looking at historical examples of universal and accessible design. My findings from looking at examples ranging from post-World War II rehabilitation devices to modern consumer appliances are that changing politics of disability underlie all major shifts in approach. Most notably, the voices of disabled people are often sublimated to commercial or political assessments of disability, something that design research must address.

- **Identified barrier:** Institutional flattening of disability into the issue of accommodation; little sense of disability as a contribution to the learning environment.
- **Identified opportunity:** Emerging student generation who identify as disabled politically and culturally, including cognitive and mental health disabilities.

### 2.2.3 Farnaz Nickpour

Farnaz Nickpour is a human-centred design researcher, educator, and practitioner. Her work explores critical and contemporary dimensions of design for inclusion. She leads the Inclusive Design Research Group in the United Kingdom.

As an Industrial Designer by background, my starting point has been the study of design in the physical realm; objects and products. Hence the foundational focus of inclusive design on physical, cognitive, and sensory capabilities is a precondition. However, almost three decades forward, I believe there is an urgent need to revisit the core concept of ‘design for inclusion’ and challenge its current definitions, scope, theories, and applications. We need to embrace the wider, more challenging, and contemporary contexts for design for inclusion - exploring the full spectrum of ‘human diversity’. Firstly, move beyond age + ability; looking into cases such as lifestyle exclusions, invisible
disabilities, and neurodiversity. Secondly, move beyond physical access and physicality of experience, entering the realm of psychosocial, and aiming for overall quality of experience. I share two examples of inclusive solutions which I believe are relatively successful; Bradley haptic watch, designed primarily for blind people and a desirable multi-sensory timepiece for all - using two sense to engage with time. Biomimicry food packaging designed by Mimica, with vision impairments in mind — starting with an inclusive mission but adopted as innovation in sustainability and food waste.

- **Identified barrier**: Getting stuck with the ‘access-provision’ mentality focusing on physical accessibility as the ultimate goal rather than the starting point
- **Identified opportunity**: Engaging with the extreme and innovating for the mainstream as core (diversity as a driver for innovation)

### 2.2.4 Elizabeth Guffey

Elizabeth Guffey is a design historian and author of various publications, including *Designing Disability: Symbols, Spaces, and Society*. She is also founding editor of *Design and Culture*.

As a specialist in design history/theory/criticism and a disabled person, my book responds to the International Symbol of Access. At the DRS, I described how my book derived from my experience sitting on board of access at the building of my University, which was designed as “accessible” inside, but not outside. The symbol, I explained, was present, but doesn’t guarantee compliance. Indeed, I noted that the introduction of a newer symbol depicting a more ‘active’ chair user is often used in what I call ‘bluewashing’.
I noted that ‘Universal Design’ is a term often referred to in the US as a form of ‘heritage.’ Inclusive design is an alternative, though not well consistently defined. At the same time, I noted, there remains a culture of fear and sense of defensiveness around the subject. This has not helped as lawsuits are mounting over digital access (and institutional secrecy in matters of access).

How are ways to counteract these measures? I concluded, arguing for a variety of co-design practices—bringing disabled people into design fields, etcetera.

- **Identified barrier:** The “culture of fear” (about breaking the law, doing something “wrong,” etcetera, as a barrier to moving forward)
- **Identified opportunity:** Opportunities for co-design, tap the creativity of disabled people (more designers with disabilities trained/brought into practice as in WITH program)

### 2.3 Part Two: Small Group Query-Driven Discussions via Rotating Stations

#### 2.3.1 Station 1. Inclusive Research. Identify opportunities and barriers for inclusive research in your field—whether history/criticism, practice/research or other

*Figure 7 Research opportunities discussion*
The discussion recognised that many barriers could also be opportunities.

Opportunities:

- Organisational incentives
- Long-term goals: envisioning value
- Uniqueness: Identity
- Performance of assistive devices like hearing aids
- Empathy more than sympathy
- How can disciplines work together via inclusive design? Lots of opportunities for cross-disciplinary research.
- Integration of inclusive design projects into the curriculum rather than isolated stand-alone projects
At the local government level, there is a lack of incentives around inclusive design. City Con in London is offering a change in the right direction by adding incentives through government.

As educators working in design for social innovation, we need to help our students to understand issues of liability. This is a highly regulated environment. How might our curriculum support our students and allow them to produce work that can advance? Often our curriculum doesn’t account for that.

Opportunities around aesthetics. Some of the most powerful projects put aesthetics at the forefront.

As an educator, I feel we don’t talk enough about the people we are educating students to design for.

Opportunities for ML are interesting particularly around interface design. Paradigm changing. How can ML move us toward design for one?

Barriers:

- The misconception that data might be enough is a barrier—that data will suffice instead of bringing real people to the table. Dealing just with data allows designers to avoid dealing with the nuance of lived experience around disability
- Lack of training at University leads to having to self-educate
- Inclusive design standards can lead to designer defensiveness which causes barriers to go up.
- Unrealistic measurements of social values
- Acceptance or decline of charity
- Perceptions of aging
- Embodying these experiences easily
- Rate of abandonment
- Performance of assistive devices like hearing aids
- Dated welfare state
- Few academics have an interest in this topic in my country
- Ethical concerns. Need for training before engaging with disabled people
- Budget restrictions
- Lack of expertise around designing for inclusivity and the technical knowledge needed to interpret the government regulations
- Privacy issues: what information are people willing to share?
- Availability of feedback for research projects
- Resistance to change
- There is a mistaken assumption that everyone can use technology
- Lack of defining inclusive design as part of a design career
- Practice and interface design. Companies go after government contracts. Lots of regulations around access that are creating opportunities to address users with disabilities but a lot of resentment. Some companies use inclusivity as a reason not to update things. Resistance to change. Inclusion as a barrier and an opportunity
- There is a misconception that older adults are always vulnerable—like infants. This attitude is a barrier that affects general perceptions of how we age. Having a mindset that we peak at 40 limits our ability to embrace a more fulfilling life as we age
- Lack of user buy-in
- The distance between researchers and end-users
2.3.2 Station 2. Inclusive Design Methods. List current inclusive design methods. Describe problems and successes that you have experienced with these methods.
Problems:

- Filling out forms: bureaucracy
- How to achieve institutional buy-in
- Ethics and extensive paperwork
- Exclusion: calculation/estimation—good for persuading clients, too narrow needs to be complemented by user research but often no funding is allowed to this.
- User observation involvement: lack of funding and time, the client wants answers tomorrow or they won’t listen, difficulty recruiting more excluded groups.
- Motivation for awareness
- Role of the state?
- Simulation: can be limited and not welcomed by some communities

Successes:

- User Observations: useful but sometimes vague
- Timely and urgent discussion as design practice evolves
- Co-design processes in both school and studio setting
- Universal Design barriers vocalised for me for first time—have already experienced this in reality
● Establishing trust—protecting rights of participants
● Experimental methods—engaging family members in the project
● Role-playing
● Colour/type legibility
● User testing
● Non-Universal Design methods?
● Educate clients about expectations

2.3.3 Station 3. Inclusive Practice. List voices/disciplines/reference points you currently engage with in your inclusive practice. Who/what do you feel is currently missing?

![Inclusive practice documentation](image)

Current reference points:

- End user’s family/relatives
- Networks of professionals
- Project stakeholders
- Experts
- Social media (a biased reference point)
- Internal resources and reference points – people, stories and facilities

Missing reference points:

- Positive motivations rather than tick-the-box and bare minimum mentality (Inclusive Design is not sexy, but it could be?)
- Research tools (limited and inaccessible)
- Books, guides, inclusion and exclusion case studies (effective info on how what we do affects us)
- Access to networks of professionals – interdisciplinary input and perspectives
- End users (there is still a lot of voice and input missing from them), communities, children
- Knowledge, guidance on how/when to address Inclusive Design within the process
- Transition design and system design perspectives
- Social, cultural & global perspectives (e.g. culture-sensitive research methods and approaches)
- Democracy, decolonisation, tokenism perspectives
- Race, gender and power perspectives
- Cognitive psychology
- Information and guidance on desirability?

Key issues raised:
- Apart from some usual suspects, the reference points could vary from one practice to another - depending on the nature of the practice (research, product, policy, service, etcetera), scale, client, timescale, and level of priority/proactiveness and familiarity of the team leading the project.
- The client is a key factor - in practice, almost everything goes back to how much/little they are interested, what their angle on inclusivity is if/why they care, and if/how inclusion sits as strategic part of the brief.
- Inclusion suffers from ‘afterthought’ mentality and is mainly seen as ‘add-on’ in industry briefs, hence direct impact on inclusion practices.
- Integration of principles, methods, and practices in the educational curriculum is crucial - that’s where people first and foremost learn about inclusive practices.

2.3.4 Station 4. Networking Table
Names and sites of the study were shared (see attached participants list). We also discussed some of the institutional “homes” for disability research and the barriers to learning/sharing information.

Some themes that emerged:
- Most people do not have a disability-specific academic background and only a few encountered this subject in design school
- Design research projects seem to either identify “inclusive” strategies or not include disability (some participants shared how disability issues had come up in projects not otherwise labelled as such)
- Paths to entry are not always clear – participants mentioned not wanting to be “patronising observer” or “outsider” / life experiences with disability (whether self or family/community) had often shaped them but were not recognised as research

2.4 Part Three: Wrap-up Discussion. What have we missed in our discussion?
Key Points:
- E Guffey: Are we designing against each other? Cross-disability conflicts. Disability is a huge field. A lot of the things that are helpful to blind people get in my way. We are often designing against each other. I’m not sure how to solve that.
- S Red Wing: language and terminology issues can be a barrier. How knowledgeable are we about terms that we throw around. People may not know what those words mean. We get
categorised under terms that don’t represent us. Build better language to address and share our practices.

- Mac Hill: Inclusivity as afterthought/check box, problematic verses opportunity. Working in the field of inclusivity often feels like an afterthought. A box that you check off. Make something that is usable for people instead of just checking the box.
- Andrew Shea: What is the range and diversity of projects that people work on?
- Joe, practitioner: How designs are at odds, cases for the industry?
- Farnaz: Practice-based work, case-based versus critical discourse
- E. Guffey: “Design for One” - individual cases, but does this avoid bigger question? The thrust right now is toward designing for an individual. Designing for one. How does this cycle out to bigger questions. How do you design for one person’s problem without shutting someone else out? This should also be part of the discussion.
- Joy: Data driven approach. My research that looks at data in the population tries to get at this by trying to measure who would be including and excluding. Better for evaluation than developing new ideas.
- E. Guffey: Kat Holmes who created the Microsoft toolkit is writing a book around exclusion. She talks about inclusion verses exclusion in her new book: Mismatch. The mismatch between disability and the larger world.

Final question from wrap-up: How do we want to move forward to continue this Conversation?

- Share specific studies and experiences.
- Invite everyone to join the Google Doc.
- Distil conversations and share insights.

3 References
About the Authors:

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