Jun 25th, 9:00 AM

Notions of designing inclusively from practitioner perspectives

Maxim Lamirande
The Open University, United Kingdom

Katerina Alexiou
The Open University, United Kingdom

Rachael Luck
The Open University, United Kingdom

Notions of designing inclusively from practitioner perspectives

Maxim Lamirande[a*], Rachael Luck[a], Katerina Alexiou[a]

[a]The Open University, UK

*Corresponding e-mail: maxim.lamirande@open.ac.uk

Abstract: Even though inclusion is a well-researched subject in design, the numerous ways to describe and understand it are unsettled. The theoretical landscape often leads into paradoxes about how to best practice inclusion in design development processes. Instead, this study probes present-day understandings of designing inclusively from the perspective of practitioners who adopt an inclusive approach. A review of existing literature helped formulate preliminary notions that guide discussions with practitioners recruited across different domains. Iterative analysis of the data from these interviews reveals some differences between the original theoretical constructs and how they are perceived and used in practice. This paper outlines the notions reformed through practitioners' lived experiences: They are Proof of Logic, Governing Ways of Thinking, User Accessibility, Project Constraints, User Involvement, Design Stages, and Outcomes and Impact. The research can help untangle the issues that matter to practitioners which can ultimately help inform future practice.

Keywords: inclusivity, design practice, involvement, accessibility.

1. Introduction and background

The concept and understandings of inclusion in design, despite many years of research attention and changes in reception within society continue to be unsettled and entangled (Heylighen 2008; Luck, 2018a). Notable conflicts emerge within different framings of inclusion which impact the uptake of inclusively designing everyday buildings, spaces, and objects. Snapshots of the theoretical landscape do not seem to overlay well onto real-world practice. Therefore, further research is proposed to better understand inclusion in design from the perspective of practitioners who purport to designing inclusively. This research explores how a series of notions - inspired by a review of theory - reflect practice, and how they change or evolve through the stories and experiences of practitioners.

Designing Inclusively can be partially introduced as the use, appreciation, and recognition of a greater diversity of people and access requirements. We say partially since each individual, project, and attempt at inclusion can hold different framings of the intentions, goals, and

means of achieving them (Dong et al., 2013). It was recently highlighted that inclusive practices are "plural in the ways [they] are practiced […] with histories that are entwined" (Luck, 2018b). We advance that the theoretical landscape alone is paradoxical when thinking about the uptake of inclusion. For instance, one understanding of Inclusive Design evolved to "ensure that […] products and services address the needs of the widest possible audience, irrespective of age or ability" (Design Council 2009, in Bianchin and Heylighen, 2018, p. 1). Although this definition broadens the number of people (positively) affected by the approach, researchers like Hamraie (2017) criticize that this kind of generalization downplays significance and once again outcasts marginalized individuals. Despite the number of academic publications that theorize and attempt to distil or assimilate these multiple perspectives into constrained definitions, the uptake of inclusion in practice is still lacklustre. Despite the relevance and value of purely theoretical research like that on the ethical dilemmas of inclusion (see Chan, 2018), these views engage with the topic of inclusion, but do not always lead to insight for real-world design situations. This research instead chooses to probe practitioners directly and report on present-day design practice.

Studies about design practice have already revealed some of the concerns or discrepancies between theory and practice. Namely, Van der Linden et al. (2017, p. 66), "find little uptake in design, as [inclusive approaches] seem incompatible with architects' 'designerly ways of knowing' in terms of both content and form". Gheerawo & Lebbon (2002, p. 44) insist on the importance to "ensure a product is designed and engineered with the end user at the centre of the process, but often, this work is not take up in practice […] to the disbenefit of both the producer and consumer." Equally, Dong et al. (2013) asked companies about their inclusive practices and identified issues around bottom-up design approaches, estimating design exclusion, attitudinal barriers about (dis)ability, and the provisions necessary to support user involvement. The present inquiry carries this research on into an exploration within current real-world practice, and broadens the scope to include both inclusive design and its neighbouring approaches.

2. Proposed notions

To support further inquiry, eight approaches surrounding inclusion in design were reviewed: Design for all, Participatory, Universal, Super Normal, Feminist, Alternative, Accessibility, and Inclusive Design. Through exploring publications and forming thematic clusters, seven notions emerged that seem to embody notable characteristics, parameters, or aspects to designing inclusively. These are:

1. Governing Mentalities: formed by the widely shared values, norms, expectations, and assumptions that hegemonize society (Campbell, 2000). In Nieusma (2004, p. 19), it's explained that "governing mentalities shape how people interpret macro socio-cultural phenomena and how they think about their own lives and identities". Heylighen et al. (2017) highlights the tensions within dissolving the rhetoric of 'us' and 'them' to create a more universal offer for all, whilst maintaining a design that is suitable for each individual. In

designing inclusively, practitioners advocate for the inclusion of often unheard voices while reflecting on whether to work alongside, transform, or dismantle governing mentalities / status quo.

2. Marginalisation: also described as oppression, the unheard voices, or sub-altern(ate) groups in society (Nieusma, 2004; Van der Linden et al., 2017). Lines are drawn between the inclusion and exclusion of specific groups (Tonkinwise, 2019). Individuals are marginalized by designs, and the decisions behind them (Connell & Sanford, 1999). This places responsibility onto the designers, architects, and clients who implement new designs (Holmes, 2017). Marginalisation can be broken down into concerns for marginalised majorities (the design for all, or resonating issues between different user groups), and marginalised minorities (specifically overlooked marginalised people).

3. Accessibility: looks at how an approach is concerned with peoples' (dis)abilities or access requirements, and the contextual issues of access in the design process – such as financial ability, knowledge about (dis)ability regulations, or time dedicated to inclusive design research (Boys, 2020; Goodall, 2020). This stems from design approaches that work to advocate for users with physical and cognitive disabilities as well as the complexities of their participation in the process (Hamraie, 2017; Clarkson & Coleman, 2013). As the theoretical landscape grew, a social model of ability highlighted how social impairments are diverse and can come from gender, sexual orientation, social status, or cultural views, amongst others (E.I.D.D, 2004).

4. Involvement: Defining user involvement was noted as an often-significant challenge to carrying out a design development process and including diverse user groups (Frauenberger et al 2014). Suchman (1987, p. vii) proposes that inclusive approaches should have a "central and abiding concern for direct and continuous interaction with those who are the ultimate arbiters of system adequacy; namely, those who will use the technology in their everyday lives and work". Questions are formed around the enablers and barriers to who is included and excluded in (different parts of) the design process (Dong et al., 2013; Luck, 2018b).

5. Design Stages: Inclusion is advocated for at various points in the development process. Some work to improve the design context from the outset by redefining design objectives, others throughout the process, and others are mostly concerned with the design outcomes (Van der Linden et al., 2019). This characteristic therefore highlights which stage of the design is concerned in the use of specific inclusive practices. Often, it's reported that the uptake of inclusion is easier to achieve when objectives are determined from the outset of a project (Sanoff, 2010).

6. Scale of Change: Different approaches work to improve the lives of users, ranging from systemic changes, to individual or localised ones; From deliberative democracy within a community (Atlee, 2003) to the feeling like a project was designed "just for me" (Thomas & McDonagh, 2013, p. 3). The scale of a proposed change – from collective to individual

(societal to local) influences the design approach, goals, design and production processes, limitations, and outcomes (Imrie & Luck, 2014).

7. Fairness: The arguments around fairness and equality are diverse and difficult to settle. It concerns the ideas of 'what is fair, and how to strike a balance?' (De Cauwer et al., 2009). This is especially seen when reflecting on how team members perceive the inclusion of marginalised groups, and their responsibilities in the design process (Van der Linden et al., 2019). Many report on the relationship between the concept of fairness and social justice, even leading into its ethical implications (Bianchin & Heylighen, 2018; Chan, 2018). This notion draws attention to the negotiations about fairness, and the reasonings behind them.

3. Methodology

This research reports on testimonials from practice; where projects are launched and decisions around inclusion must be made. The investigation tries to make sense of experiences or interactions when designing inclusively in a project development process, and the deeper meanings behind them (Creswell & Creswell, 2018). Research in this way "is not concerned with the 'true', but with the 'real'" (Godin & Zahedi, 2014, p.4). The complexity of designing and designers leads to accept that the ever changing and unique perceptions of each person create a nearly infinite number of possible outcomes (Bucciarelli, 1994; Dong et al., 2013). Whilst this could lead to obvious conflicts, real-world project development insists upon practitioners to negotiate, resolve, a develop final outcomes – forming the crux of this inquiry.

Data collection lasted 9 months. It included 6 practitioners and 8 semi-structured interviews (Practitioners 1 and 2 were interviewed twice to gain deeper insight on their practices, and inquire into topics that were not initially part of the interview framework). Practitioners were selected for their involvement in inclusively designing public access projects (designs accessible to a public audience). They were identified either through (i) an immediate design network, (ii) search engines using variations of the keywords *design, architecture, inclusive design, inclusion, accessibility,* and *disability,* (iii) recommendations from building managers through exploring the city (London) for inclusive architecture, or (iv) their presentations at events and conferences on inclusive practice. Their roles and responsibilities varied, but each declared an active advocacy to designing inclusively in their respective projects. At the time of interviews their roles and projects were:

- Practitioner 1 (P1): an architect and leader of an inclusive design consulting team for a large architectural firm. They work with clients to improve inclusion and user accessibility for hospitality (hotels), and new office builds.

- P2: an industrial designer manufacturing public structures. They lead a research and development team in the delivery of *inclusive play* water structures for theme parks and public (city) parks.

- P3: an event designer for inclusive community engagements. They are the curator / director of inclusion and design inclusive – or *relaxed* - programming and events for public art spaces, galleries, and museums.

- P4: a product designer for a health and wellness app. They are the head of design and marketing for a fitness app whose ethos is 'movement for everybody, and every body'.

- P5: a design engineer for major public transport projects. They were the commissioner for a major underground transport link and advocated for improved accessibility standards. They now lead public council groups that advocate for greater inclusion and accessibility in their community.

- P6: a ((dis)abled) inclusive designer for public spaces. They are foremost an artist who campaigned for barrier free access to public venues. They now consult on inclusively designed refurbishments of theatres, galleries, and other public event spaces.

Due to COVID-19 restrictions, semi-structured interviews were conducted remotely. 45-to-60 minute recordings were transcribed manually by the lead author. These later served to code, analyse, evolve, and help better understand the notions (predetermined codes) at play (Creswell & Creswell, 2018). The format was flexible and open-ended. Interviews were presented as talks, discussions, or meet-ups to encourage an informal tone. Practitioners were first asked to speak about themselves, their experiences designing inclusively, and overall structures and ethos within their organisations. Next, they expanded on their practices and personal experiences of inclusion through cues, and questions that aligned more closely to the proposed notions*:*

- How do you understand Inclusion?

- Can you think of a project where designing inclusively went well / went poorly?

- Was anyone excluded; how do you draw that line of who is, or is not included?

- How do you argue for better inclusion with reluctant clients?

- What kind of features made this product more accessible than previous ones, or market competitors?

- What kind of restrictions or opportunities did the timeline create?

Since this research is driven by changes to the notions – informed through practitioner experiences – data collection and analyses happened in tandem. Once a discussion was transcribed, it was coded soon after (within 2 weeks). Discussions served as a sounding board about the relevance of notions, and to better describe or adapt each notion according to lived experiences. The notions underwent four versions, outlined in the table below:

Table 1.   *Practitioner Interviews conducted, analysed, or re-analysed under each version of proposed notions (i.e., P4 = Practitioner 4; P1(2) = Practitioner 1, Interview 2)*

	Version 1	**Version 2**	**Version 3**	**Version 4**	**Version 5**
Conducted	P1(1),P2(1),P3	P1(2)	P2(2),P4,P5	P6	
Analysed	P1(1),P2(1)	P3	P1(2),P2(2),P4	P5,P6	
Re-analysed		P1(1),P2(1)	P1(1),P2(1)		P1(1,2),P2(1,2),P3,P4,P5,P6

4. Results and Reflections

Our goal was to explore whether the notions derived from theory reflected practice by inquiring upon practitioners who purport to design inclusively and adapting the notions according to their real-world experiences. Through 8 interviews and four iterations, it was found that some elements from the notions carried through, while others did not. The table below provides an overview of their evolutions (Table 2). This is followed by reflections on why and how they changed substantiated by the data collected, and finally a table on their latest understandings.

Table 2.   *Changes to notions according to each version*

Version 1	**Version 2**	**Version 3**	**Version 4**	**Version 5**
Governing Mentalities	Governing Mentalities	Governing Mentalities	Governing Ways of Thinking	Proof of Logic
				Governing Ways of Thinking
Marginalisation	Marginalisation	Inclusion / Exclusion	Instances of Inclusion/Exclusion	--
Accessibility	Accessibility (for Users)	User Accessibility	User Accessibility	User Accessibility
	Project Accessibilities	Project Accessibilities	Project Constraints	Project Constraints
Involvement	Involvement	Involvement	User Involvement	User Involvement
Design Stages	Design Stages	Design Stages	Design Stages	Design Stages
Scale of Change	Scale of Change	Scale of Change	Scale of Change	Outcomes and Impact
Fairness	Fairness/Equity	Fairness/Equity	Fairness	--

4.1 From governing mentalities to governing ways of thinking

The notion of Governing Mentalities carried through the series of interviews without many significant changes. Practitioners easily described the effects of hegemonized thinking such

as underlying perceptions around (dis)ability: "often the exclusion of disabled people is presented as personal bad luck or misfortune and natural - of course you're going to be excluded because your body or mind works in a non-normative way. But [exclusion is] not natural, it's a decision that's being made or maintained consciously or otherwise" (P3). Practitioners also reported on socio-cultural phenomena that seemed to catalyse inclusion. The social movements and visibility of Black Lives Matter and the risks for ageing populations in care homes during the pandemic motivated clients to push beyond the boundary of regulations. Clients included the voices of users (both mainstream and marginalised) and dedicated more time and resources to their safety and wellbeing.

In the fourth version, Governing Mentalities changed into Governing Ways of Thinking. While some 'mentalities' were significantly influential in the process, they were tightly bound to the project or organisation. They were not inherently a reflection on macro socio-cultural phenomena, as Nieusma (2004) described. The term was shifted to Governing Ways of Thinking; a link to design through Cross (2006, p. *X*) who advanced that "designerly ways of knowing involve *ways of thinking* and knowing that form part of the process".

4.2 From governing mentalities to proof of logic

While governing mentalities (ways of thinking) were quite influential across the projects, they were not definitive and could be overturned. Practitioners reported that inclusion was sometimes simply not a priority at the outset of a project and clients were reluctant to design inclusively: "There was a business case for it because there was a need for these particular types of rooms in [redacted] so [the company] could be quite a beacon outside the status quo. But they gave us push back because 'well we've always provided X% of rooms and that's been fine so why would we change that'" (P1). Despite established ways of thinking, practitioners could sometimes negotiate and widen the scope of inclusion. They commonly reasoned the translatable benefits from one user-type to another. For instance, wider throughways were useful to people with mobility requirements (people using a wheelchair, walking sticks, canes) as well as those walking with a child, a dog, or a suitcase. Improved hallways would resolve overall bottlenecking issues in parts of the space. In another example, an engineering firm wanted to renovate their toilets and prioritised men since their organisation is predominantly male. The designer argued through the importance of gender equity and proposing a future in which more women work in engineering. Access to toilets represented an inclusive mindset. In opening the discussion, they also proposed amendments to recognise gender fluidity, access requirements to larger toilets, and the value of showers for the increasing number of employees cycling to work.

Proof of Logic was proposed in the final version (5). It existed within the governing ways of thinking and was difficult to dissimulate. Practitioners reported on a logic of inclusion and a need to demonstrate it cohesively: "[the concept] was denied for production because it wasn't logical from a business standpoint" (P2), "It's completely logical, but I think it's so easily forgotten by people in power in all respects" (P6), or "It's back to it about the short

term long term, logic or not logic" (P5). Eventually one practitioner was explaining the challenge of involving users and said: "There has to be *proof of logic* in involving the disabled" (P5). The statement *Proof of Logic* embodied the reflections on negotiating and finding a way to overcome a governing way of thinking.

4.3 Removing marginalisation

Practitioners told stories about the lived experiences and examples of marginalisation: "Users report that a design made them feel like they were not welcomed" (P5). Despite its prevalence in theory and practice, practitioners explained that the instances of inclusion or exclusion were used to support attempts at design inclusively. Practically, instances were substantiating other notions like Proof of Logic, Governing Ways of Thinking or Project Constraints. As it seemed to be embedded in other notions, it was no longer useful to identify as a standalone notion.

4.4 From accessibility to user accessibility

People's access requirements are central to designing inclusively, but accessibility is interpreted in many ways. Practitioners can interpret accessibility through regulations like the Equality Act (2010) or Human Rights Act (1998). Although, some practitioners question the value of regulations; on the one hand, they set a benchmark of legal compliance that protects the needs and interests of marginal groups. On the other hand, regulations often fall out of date and cease to represent current needs and requirements. User accessibility is also considered through cognitive abilities such as how children at different places on the autism spectrum interact with play structures. This can also intersect with physical abilities like strength or independence, and age in some cases. Physical abilities are also reported in the design of apps and their colour contrasts, or the layout of a physical space. Accessibility is informed by values. One practitioner explained a recent project with visible minorities and cycling in a city centre. Despite being able to cycle, users were foremost concerned about the relationship between automobiles and bicycles. Many explained how their own characteristics (mainly race) were also a concern, where cyclists were seen as vulnerable to racist acts from passers-by, including law enforcement. On that note, accessibility is also interpreted as characteristics like race, gender, age, weight, and sexual orientation. Practitioners explained that designing inclusively through these characteristics was often very abstract and difficult to resolve or even understand; They pointed out the importance of recruiting people from relevant groups to share their experiences and provide advice on the project (further details about this in User Involvement, see Notion 6). Practitioners suggested looking at the existing pool of users, speaking to local councils who may know of groups in the community, or to consult agencies that specialise in recruiting for focus groups.

The first version of Accessibility addressed both project and user requirements. It was clear that this confused practitioners, and that the respective requirements were substantial enough on their own. In version 2, Accessibility was split to User and Project Accessibilities.

In version 4, Project Accessibilities was renamed to Project constraints. This way done to create a clearer line between both notions. Practitioners more often associated 'Accessibility' with user than project requirements.

4.4 From accessibility to project constraint

Project requirements often frame what is possible in the development process. Whilst costs were a concern, practitioners were especially constrained by timelines. Often, new ideas or proposals would come through in early ideation stages, but short deadlines coerced design teams to rely on established procedures. This was also a challenge when specific ideas did not match with manufacturing processes. One practitioner explained, "they don't want to make it more customisable because it cost too much money each time. It takes a whole department of 7 people to modify every single time, every single detail" (P2). Project constraints were of more significant concern during negotiations with stakeholders in the early stages; Choices made in the beginning around design objectives, priorities, and timelines are imposed through the project constraints across the entire process.

As mentioned, 'Accessibility' split to address user and project requirements separately. Project Constraints were formed through the understanding that a project is bound or framed by what is accessible to the organisation, group, or project. The term 'Constraints' embodied this well and could be used to avoid any confusion from using the term 'Accessibility' in two different notions.

4.5 From involvement to user involvement

Practitioners provided strategies and recommendations to justify or improve involvement. Including users in site assessments and prototyping helps quickly validate the qualities of a design. In one case a practitioner included a user with walking sticks in the development stages: "She could get around with sticks, but nowhere to park them and issues at the reception area [...] there is no way you can argue with the person standing there in front of you showing you the problem" (P5). Practitioners often reported to include people from marginalised groups to test a design, but some users were also involved as team-members and leaders. As a disabled director, one practitioners' company could immediately validate a concept in-house and drive the ethos of inclusion from the top down. Some cautioned involving users as team members as they may not be able to communicate their ideas as designers or negotiate confidently in a team. This can downplay the impact of involvement. Users are often involved in limited capacities where their participation is well framed, and designers are comfortable facilitating them and distilling the lived experiences into usable design ideas.

Involvement was carried throughout the research but adapted to focus on users particularly. They were considered in the first iterations, but the notion was open to other sources of involvement. Some practitioners question whether the involvement of regulations and

standards was considered a way to design inclusively (a mythical user, or *persona*). As such, it seemed useful to specify 'user' to focus on the involvement of real people in the process.

4.6 Design stages

Practitioners assessed where inclusion is most effective, useful, used, or unnecessary across a project. They report on its value in the early stages: defining the strategy, preparing the brief, concept design, and prototyping. Users should be included "the earlier the better" (P1) to embed their views and experiences into the conversations around the brief, objectives, and design criteria. Inclusion is built into the project through early ideas and iterations. This should equally suit stakeholders; a practitioner pointed out that "it's just words in a document or lines on a drawing. It doesn't cost anything to change" (P5). By the manufacturing and construction stages, practitioners report that advocacy for inclusion is not a concern. Inclusive features should simply unfold according to the design plans. Despite this, one practitioner warns that the final parts of construction are critical. Rushed to finish, a builder may see an open space to fit an additional heater. However, that space may have been a clearance at the bottom of a ramp. Open and empty spaces are sometimes easy targets to resolve oversights in the design plan; building teams may not see that a space is designed in a specific way and compromise accessibility unknowingly through small changes. Finally, by observing users after project launch or handover, practitioners could see firsthand experiences and carry these into the beginning stages of a new project and process.

4.7 From scale of change to outcomes and impact

Practitioners talked about key moments that changed the course of a project. Sometimes, clients experienced or witnessed first-hand how their products marginalise. Often in these cases, their initial reluctance for inclusion eroded. Despite uncertainty in the outcomes of an inclusive approach, clients were willing to try and become exemplars in their market segment. Other times, despite well-articulated proposals, clients were dismissive. One practitioner reported on feeling so deflated, they no longer saw value in the project and resigned. Sometimes, a small change – like the heater installed by the ramp – could considerably impact the inclusive qualities of a design. Scale of Change was well understood by practitioners, but they reported on its value especially at the end of a project. Some inclusive practices may seem to play a significant part in the project, but impact seems best understood through the outcome.

4.8 Removing fairness

Conversations about fairness and equity were common, although subverted. Some practitioners provide data to help clients think about marginalisation in percentages, or challenge clients about the value of someone's wellbeing or life (in the case of safety concerns around a design). Most practitioners challenged universal solutions for all. They recommended either first designing for the least able and expanding on the product from that point or finding creative solutions that provide users with different experiences of equal

quality. Despite its relevance, fairness was not overtly discussed. Rather, it was embedded in the arguments, negotiations, and proofs of logic. As such, while fairness and equity are relevant to inclusion, it's proposed that they are intrinsic and contribute within other notions, rather than form their own.

Table 3: Overview of the final iteration and understandings of each notion

Governing Ways of Thinking

Well-established mentalities that motivate people's decisions. Usually, norms or standards that influence how something is conceptualised; guided by social, cultural, ideological, or economic values held by a dominant group. They frame how something is perceived and shape our assumptions. While they can certainly promote inclusion, they 'traditionally' marginalise groups outside a mainstream. Also referred to as status quo, normative thinking, or governing mentalities.

Proof of Logic

Explaining how marginalised perspectives can add value to specific or overall goals: to compel with reasons that demonstrate value to the design. To establish criteria with evidence and statements, or inferences deemed valid to those involved in the project. People (team-members, stakeholders, clients) and documentation (regulations, guidelines, standards) create different goals in a project. Proof of Logic is often presented through design goals to strengthen the business case, gain a larger client base, create a more reliable product, or produce industry leading (sometimes disruptive) designs.

User Accessibility

The ability for users to interact with and understand a design. Designs should at least comply with regulations to be 'technically usable' (P6) but designing inclusively most often pushes beyond usability and learns directly from users . There is particular attention to physical and psychological (dis)abilities, and those within marginal groups or protected characteristics (like gender, race, sexual orientation, social status, etc…). It is important to meet access requirements for their effective participation; There is a guiding principle that barriers are caused by the designs and not by those trying to use them.

Project Constraints

The imposed restrictions to a project plan including budget, timeline, processes, requirements, values, and practitioner availabilities and capacities. They help guide a project forward and frame both its opportunities during the process, and its (estimated) outcomes.

User Involvement

To listen to or include (the concerns of) those using or affected by a design and implement their experiences, thoughts, or insights into the process. Users can also take part in a project to test outcomes. They may provide advice about current designs, recommend changes, advocate for, and help identify unmet needs or oversights, or test out prototypes and help make design decisions. They may also contribute as equal team members or leaders in a project pending their ability to participate, or the skills of others to facilitate.

Design Stages

A development strategy organised into distinguishable parts, separated by milestones (significant points in development). Each stage consists of specific actions, objectives, results, gatekeepers, and practitioners. Design stages form the design process which may differ from one organisation, team, or project to the next. Despite some differences between one process and another, there are key moments to designing inclusively: setting up inclusion in the brief, validating ideas and prototypes with users, resolving unexpected issues during construction, and assessing user experiences after handover.

Outcomes and Impact

(Outcome) the consequence of decisions made during the design project and (Impact) the after-effects of those decisions to the final design. They are the end results of a process submitted for handover and ready for use. Key moments during the project may present themselves and have significant impact: from small oversights to innovative proposals.

5. Reflections and Future Work

This paper is part of a research project working towards improving the uptake of designing inclusively in present-day practices. A first inquiry into the theoretical landscape provided a set of 7 notions. These served as a guide through discussions with practitioners who purport to designing inclusively. This paper outlined the work and results from questioning whether the notions from theory reflect practice, and how they may have changed through the stories and experiences of these practitioners.

Although the terminology used to describe the notions adapted through different iterations, some overarching themes carried throughout discussions. This includes the effect of governing ways of thinking, accessibility for different users, the impact of project constraints, involving those most often marginalised by a design, the development strategies that form the design stages, and the outcomes and impact of (inclusive) decisions made throughout the process. In two cases, the gap between theory and practice was significant enough to remove the notion altogether. Although these notions were cited and explored in theory and practice, they did not present significant enough value as standalone notions, but rather as supports to others. For example, in the case of 'instances of exclusions/inclusion', Holmes (2017) explains that many objects in our everyday – such as adjustable seating (office chairs, cars, bicycles) respond to body type exclusions. Creating an adjustable design considers a wider range of users and directly supports a proof of logic, can improve the outcomes and impact of a design, or demonstrate the consequences of a governing mentality (average height or sitting style). Similarly, participants explained that instances of exclusion (buildings that do not offer step free access) and inclusion (improved reputation from high inclusive and access standards) can help justify a need for more inclusive practices. In this way, these instances are useful to the research, but serve to support other notions. Similarly, practitioners engaged well with fairness (also described as equity). Some participants used the concept of equity to justify design decisions with clients, while others explained the consequences of an unfair design – creating additional barriers for specific users. However, these were equally reported to explain a proof of logic, the concerns within governing ways of thinking, or the issues across accessibility and involvement. Perhaps researchers in a theoretical context can more readily engage with fairness without the complex network of real people, conflicting ways of thinking, project constraints, and intricacies around involvement. Kelly (2019) theorises about the ethical dilemmas within fairness in inclusion, but these ideas may not fit within the framework of a design process that insists upon clear decision making and an outcome. Active practitioners are perhaps more reluctant to overtly draw lines around and negotiate what is fair, or not.

Although this research achieved further insight into notions that more closely represent current inclusive practices, there are limitations to this research – namely the sample size, participant profiles, and selection criteria. Initially, 30 organisations were identified, but due to lack of availability, or concerns about breaching or damaging client relationships (despite Ethics Committee declarations on anonymity), only 6 took part. Still, as an exploratory project, a smaller group of participants allowed for a more thorough analysis of findings within the timeframe. Yet, there is no expectation that a different researcher conducting the semi-structured interviews, or different practitioners would yield the same results (Zimmerman et al., 2007). Second, participants provided 'western' perspectives to designing inclusively (Canada and the UK), although equally reported on projects with clients internationally (Europe, Asia, and Americas). Third, as this research was interested in learning from inclusive practices, the selection criteria focussed on those with a clear intent to advocate for marginalised groups. Perspectives from those who do not explicitly design inclusively could provide further insight into barriers. Yet, participants did explain these perspectives through their experiences with reluctant clients, stakeholders, and team members. Finally, the selection criteria equally focused on public spaces, buildings, and designs. This excludes bespoke products or private residential projects. Participants did however report on the value of unique solutions which could provide translatable solutions that support the uptake of designing inclusively. Further research with other practitioners could further enhance the proposed notions

The purpose of this research is not to use the notions to help form a single definition of designing inclusively. Rather, they serve as landmarks within the theoretical landscape that can help make more sense of key elements identified by fellow practitioners. Hopefully these notions, and the themes therein, serve in practitioner endeavours to designing inclusively and help identify opportunities within their own practices to support the overall uptake of designing inclusively. This research posits that there is no unified definition or understanding of designing inclusively since the conditions, team members, and circumstances to each project differ. The proposed notions simply help form a practical scope within the entangled theoretical landscape of inclusion in design research. They highlight specific points of interests that are more representative of concerns within practice. This can help practitioners (and applied researchers) to prioritize their efforts when learning about or advocating for inclusive practice within their own projects. Equally, the notions (and their evolutions) can help identify gaps and overlaps between theories of inclusion and the practice of designing inclusively. This research proposed an exploratory engagement across the landscape – the notions serve as landmarks, but there is a sense that some notions either sit more closely together that others or relate to different parts of a design process – such as the logistics of project development, the intricacies of working as a team, or advocating for inclusion specifically. Future inquiries could explore their relationships and relate them more closely to the act of designing by co-designing a project development process with participants (and include notions), studying these notions as they happen in practice (as *in situ* case studies), or exploring how they manifest at different levels of the project (from a stakeholder, design lead, design technician, or intern perspective - as

recommended in Dong et al., 2004). Further research could help embed the notions into practice, or transform them into a framework of designing inclusively.

6. References

Atlee, T. (2003). The Tao of Democracy: Using Co-Intelligence to Create a World that Works for All. Cranston, RI: The Writers Collective.

Bianchin, M., & Heylighen, A. (2018). Just Design. Design Studies, 54, 1-22.

Boys, J. (2020) Call to Action: A (Little) Manifesto for Doing Dis/Ability Differently in Architecture, *Journal of Architectural Education*. *74*(2), 170-172.

Bucciarelli, L. L. (1994). Designing Engineers. Cambridge, Massachusetts: The MIT Press.

Campbell, N. (2000). Using Women: Gender, Drug Policy, and Social Justice. New York: Routledge.

Chan, J. K. H. (2018). Design ethics: Reflecting on the ethical dimensions of technology, sustainability, and responsibility in the Anthropocene. Design Studies, 54, 184-200.

Clarkson, J. P., & Coleman, R. (2013). History of Inclusive Design in the UK. Applied Ergonomics, 46, 235-247.

Creswell, J. W. (2018). Research design : qualitative, quantitative & mixed methods approaches. (5th edition. International student edition). Los Angeles : SAGE.

Cross, N. (2006). Designerly ways of knowing. London: Springer.

De Cauwer, P., Clement, M., Buelens, H., & Heylighen, A. (2009). Four reasons not to teach inclusive design. In Proceedings of Include 2009. London: Royal College of Art, Helen Hamlyn Centre. (art.nr. 46).

Dong, A., Kleinsmann, M. S., & Deken, F. (2013). Investigating design cognition in the construction and enactment of team mental models. Design Studies, 34(1), 1-33.

Dong, H., Clarkson, P. J., Ahmed, S., & Keates, S. (2004). Investigating Perceptions of Manufacturers and Retailers to Inclusive Design. The Design Journal, 7(3), 3-15.

European Institute for Design and Disability (2004). The EIDD Stockholm Declaration, 1-2.

Frauenberger, C., Good, J., Fitzpatrick, G., & Iversen, O. S. (2015). In pursuit of rigour and accountability in participatory design. International Journal of Human-Computer Studies, 74, 93-106.

Gheerawo, R.R., Lebbon, C.S. (2002). Inclusive Design — Developing Theory Through Practice. In: Keates, S., Langdon, P., Clarkson, P.J., Robinson, P. (eds) Universal Access and Assistive Technology. London: Springer.

Godin, D., & Zahedi, M. (2014). Aspects of research through design: a literature review. Paper presented at the DRS 2014, Umeå Institute of Design, Sweden.

Goodall, C. (2020). Inclusion is a feeling, not a place: a qualitative study exploring autistic young people's conceptualisations of inclusion. International Journal of Inclusive Education, 24(12), 1285-1310.

Hamraie, A. (2017). Building Access: Universal design and the Politics of Disability. Minneapolis: University of Minnesota Press.

Heylighen, A. (2008). Sustainable and inclusive design: a matter of knowledge?. Local Environment, 13 (6), 531-540

Heylighen, A., Van der Linden, V., & Van Steenwinkel, I. (2017). Ten questions concerning inclusive design of the built environment. Building and Environment, 114, 507-517.

Imrie, R., & Luck, R. (2014). Designing inclusive environments: rehabilitating the body and the relevance of universal design. Disability and Rehabilitation, 36(16), 1315-1319.

Luck, R. (2018a). Inclusive design and making in practice: Bringing bodily experience into closer contact with making. Design Studies, 54, 96-119.

Luck, R. (2018b). Participatory design in architectural practice: Changing practices in future making in uncertain times. Design Studies, 59, 139-157.

Nieusma, D. (2004). Alternative Design Scholarship: Working Toward Appropriate Design. Design Issues, 20(3), 13-24.

Sanoff, H. (2010). Multiple Views of Participatory Design. Journal of the Faculty of Architecture, Middle Eastern Technical University, 23(2), 11-21.

Suchman, L. (2011). Anthropological Relocations and the Limits of Design. Annual Review of Anthropology, 40(1), 1-18.

Thomas, J., & McDonagh, D. (2013). Empathic design: Research strategies. Australasian Medical Journal, 6(1), 1-6.

Tonkinwise, C. (2019). Democracy must be Defended, by Undemocratic Design Specifications. Current, 8, 1-11.

Van der Linden, V., Dong, H., & Heylighen, A. (2019). Tracing architects' fragile knowing about users in the socio-material environment of design practice. Design Studies, 63, 65-91.

About the Authors:

Maxim Lamirande is funded under a PhD Studentship investigating inclusive practices in design and architecture. Their research has otherwise focussed on collaboration and team integration in multidisciplinary projects, complexity, the design of assistive technologies, and industrial design education.

Rachael Luck is an Associate Dean for Research. Their research studies design as it happens in practice, examining how the world we inhabit is constructed in design situations, funded by ERC, ESRC, EPSRC, AHRC, and RIBA.

Katerina Alexiou is a Senior Lecturer in Design. They have published articles in design cognition, collaboration, creativity, and complexity. Their current research focusses on co-design and co-production with civil society organisations and communities engaged in place-making and creative civic action.