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Othering establishes a divide between 'us' and 'them' by marking perceived differences. We highlight how a Deaf architecture student seeks to design out othering while designing in differences.

Designing in others: Lessons from a Deaf architecture student

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Western society tends to identify differences in age, bodily appearance, class, gender, health, education, employment, and race, but problematises only some of their features. Being unable to see ultraviolet light, for instance, is considered for human beings neither a lack nor difference worth anyone's concern, whereas being unable to hear is understood as a lack or difference – at least by hearing people.[1] What differences are considered a lack, and thus constitute otherness, is socially constructed. The same goes for differences that people appreciate, such as wearing fashionable glasses. Othering implies marking, and further transforming, perceived differences so as to establish a divide between 'us' (belonging) and 'them' (not-belonging).[2] Central to othering is an asymmetry of power relationships: 'only the dominant group is in a position to impose the value of its particularity and to devalue the particularity of others while imposing discriminatory measures.'[3]

While it is people who produce otherness, design practices materialise it. By anticipating future use, sociologist Madeleine Akrich argues, designers build their own assumptions into the very fabric of their designs:

> *when* [designers] *define the characteristics of their objects, they necessarily make hypotheses about the entities that make up the world into which the object is inserted. Designers thus define actors with specific tastes, competences, motives, aspirations, political prejudice, and the rest, and they assume that morality, technology, science, and economy will evolve in particular ways. A large part of the work of innovators is that of 'inscribing' this vision of (or prediction about) the world in the technical content of the new object. I will call the end product of this work a 'script' or a 'scenario'.*[4]

The designed object – whether a product or space – thus attributes specific competencies, actions, and responsibilities to potential users. In the design of the built environment, research suggests, these competencies tend to align with those either of architects themselves or of a so-called 'average' user:[5] 'a six-foot-tall, 20-year-old male, with perfect vision and a good grip.'[6] As a result, spaces are scripted for – and impose the particularity of – those with competencies like those of the 'average' user. In this way, built space materialises othering by establishing a spatial divide between insiders and outsiders of the dominant group.

This spatial divide conditions who is regarded as disabled[7] and who is not.[8] Consider once again the example of being deaf. When architects define their building's users as 'average' individuals, a common assumption is that they are able to hear. This includes monitoring one's peripheral environment with the auditory system, which provides essential information for spatial orientation.[9] For people who are deaf, however, spatial orientation is taken on by an enhanced peripheral visual attention system: 'Although this does not allow deaf people to see what is happening behind them, when combined with strategic decisions about seating, head movement, and so forth, it does allow excellent visual monitoring of the environment.'[10]

While this suggests that architecture has the potential to accommodate deaf people's visual needs by, for example, providing certain lines of sight, spaces scripted for the 'average' user ignore these needs and may lead to othering: 'the slow drip of constantly navigating barriers has the ironic effect of undermining [a deaf person's] sense of identity and well-being while necessitating a more acute awareness of the built environment.'[11] An extreme example can be found in nineteenth-century 'schools for the deaf', designed to 'cure' deaf students by controlling them as much as possible.[12] Their floor plans and institutional aesthetic resemble those of orphanages, prisons and other institutions,[13] testifying to 'a long history of being disconnected from families and friends through physical, communicative and geographical differences.'[14]

Our study expands prevailing understandings of the relationship between otherness and built space. We start by introducing Danielle Koplitz, an American young woman who was born deaf and, at the time of our research, was studying architecture.

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By analysing how and what she designed as part of her studio curriculum, we show how architectural design can not only *contribute to*, but also *counter* othering. More specifically, we focus on how Danielle's formative educational and lived experiences shaped her and how this in turn informed her designs.[15] The design approach of an architecture student who is deaf thus represents a unique combination of (deaf) experiences and (architectural) knowledge which has not yet been extensively studied. Rather than generalising, we seek to foreground what her design approach teaches us. After describing our methodology and outlining the general contours of DeafSpace, we show how Danielle's personal lived experiences with othering motivate her to design spaces that avoid environmental barriers and convey positive messages to make people feel good about themselves and embrace their identity.

Interviewing a Deaf architecture student

This case study forms part of a wider research project on architectural design and disability.[16]

Case-study inquiry is our preferred strategy to gain an in-depth understanding of a contemporary phenomenon in a real-world context.[17] In the broader research project, we define a case as a particular architect's design approach and the phenomenon under study is the relationship between being disabled and designing buildings.

The selected case is the design approach of Danielle, a former architecture student (29 years old at the time of the study) identified through the *World Deaf Architecture* website. Having been deaf since birth, Danielle mainly communicates using American Sign Language (ASL). As a child, she received her education at a public school through sign language interpreters. At the age of 16, she started attending the Model Secondary School for the Deaf (MSSD), a boarding high school on the campus of Gallaudet University, a university for deaf and hard-of-hearing students in Washington, DC. Upon graduating from MSSD, she obtained a Bachelors of Arts in Deaf Studies from Gallaudet. During these studies she worked as an intern at the university's campus design and planning service led by Hansel Bauman. This internship convinced her to take a master's degree in architecture at the University of Texas at Austin, from which she graduated in 2020. At the time of the study, she was still studying architecture there.

Information about Danielle's design approach was obtained mainly through a semi-structured interview and a portfolio with projects that she designed during her architecture studies. Camille Janssen interviewed Danielle in the presence of a sign language interpreter.[18] During a first conversation, Camille introduced the study and obtained written consent from Danielle. Both introduction and interview were audio-recorded and transcribed. Since Danielle preferred to be mentioned by name, the transcripts did not need to be pseudonymised. The analysis roughly followed established guides for qualitative research and interview data analysis, such as QUAGOL.[19] Reading the transcripts several times allowed the identification of identifying relevant concepts. These were grouped into themes and drawn up in a diagram that reflected Danielle's story, which we present below.

This study has undoubtedly been affected by the researchers' background as hearing persons. Through literature review, the researchers tried to gain insight into what it means to be deaf but, since they are not Deaf themselves, they will never be able to fully understand it. This also affected the data collection process. To cite just one example, during the interview, Danielle and Camille had no visual contact. As such, the pronounced facial expressions that characterise sign language were missed as additional sources of information. In addition, Camille and Danielle do not share the same language. This made it hard for Camille to estimate Danielle's intonation and emotions. To increase the reliability of the findings, Camille consulted with both other researchers about the interview guide and intermediate analysis of the results, Danielle reviewed the transcript to check if the interpreters had conveyed the questions and answers correctly, and the researchers invited Danielle to participate in writing this article. Because the interview was conducted through a translator, she modified some of the excerpts from the interview transcripts to better reflect her own words.

Starting from DeafSpace

An important reason for analysing Danielle's design approach is that, during her studies at Gallaudet, she focused on DeafSpace: a methodology to design Deaf-friendly architecture.[20] Our interest was triggered by how she connected her design approach to this methodology, but also how she builds on it from her own perspective.

DeafSpace is an architectural paradigm rooted in sociolinguistic understandings of Deafness and the Deaf community's cultural identity. The paradigm resulted in 2005 from a collaborative workshop at Gallaudet University between students and architect Hansel Bauman.[21] It is framed around five sets of principles: space and proximity, sensory reach, mobility and proximity, light and colour, and acoustics. These principles, in turn, comprise over 150 DeafSpace architectural elements.

DeafSpace is usually associated with universal design (UD) – arguably forming a facet of it – yet the paradigm is somewhat different. UD is a design approach that aims for the outcome to be accessed, understood, and used, to the greatest extent possible, by all people regardless of their age, size, or (dis)ability.[22] Launched in the second half of the twentieth century in the US, it was initially considered to be conceptually strong and easy to understand. The Americans with Disabilities Act (ADA) from 1990, born out of civil rights movements and activism, served as a profound statement to respect and include human diversity in the architectural discipline. Following from that, UD has further enriched how designers think about access.[23]

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Nevertheless, UD has been critiqued for its top-down approach, which focuses on the accommodation of universal impairment (leaving little room for the full range of human experience), and its vagueness towards whether/how collaborative design methods can be put in place.[24] As Clair Edwards and Gill Harold stress, DeafSpace distinguishes itself from UD: specifically rooted in Deaf (cultural) identity, it both articulates a user-centred design process and offers a qualitative understanding of sociocultural aspects of being Deaf (including connections between space, body, and meaning).[25] As such, in Amanda Kolson Hurley's words, 'rather than a general absence of barriers, DeafSpace favours the presence of certain design elements. It is particular and culturally expressive where universal design is general and passive.'[26]

What Danielle seeks to design

The driving force behind all Danielle's projects is designing based on, and adapted to, human experiences and perspectives. For this reason, she refers to her approach as human-centred design (HCD). Architecture, she points out, can manipulate people's perception by conveying a certain message. The message that Danielle wants to convey through architecture is that everyone has the right to feel good in a space. She strives to ensure that people – and especially those living with an impairment – no longer have to experience barriers in the built environment; that they do not feel pushed aside.

According to Danielle, solutions for barriers in the built environment are often 'glued' onto the design after it is already fixed. For example, designing buildings without taking physical accessibility into account then adding ramps – often at a side entrance instead of at the entrance everyone else uses – only after the edifice has been constructed. This conveys the message that the barrier is a side issue, i.e., not sufficiently important to be addressed from the start: 'folks design architecture first and then try and tweak it so that it can be accessible, but it needs to be the opposite. We need to start with accessibility as the primary influence on how we are designing.'

However, small things can make a big difference. As an example, Danielle cites the position of wheelchair-accessible toilets: locating these at the start instead of at the end of the corridor – as is usually done – would give people with a mobility impairment immediately the feeling that they have been thought of.

Danielle considers HCD as an improvement of UD. In her view, the latter tries to take human differences into account by standardising everything. While not negative in itself, this creates a 'one size fits all' feeling, which does not match with reality. Human-centred designers realise that people have different needs and give shape to these differences. Danielle is talking not only about differences in capacities and limitations, but also about different cultures and values. Her goal is thus not to create designs that work for everyone – this is in her view impossible because of human diversity – but to align her designs with users' (cultural) values and needs.

> *It's important to know what your community needs and how they're going to use it and how you can best meet that need.* […] *There are different cultures and different ways of designing that may work for one, but not the other.*

In her view, UD could be the baseline, with human-centred design supplementing the differences: 'When we adapt to others with disabilities, religious reasons, culture, etc., there won't be a need for universal design or accessibility, when it's addressed and merged into our buildings and lifestyle.'

Why Danielle seeks to design in a human-centred way

Danielle seeks to design spaces where people do not encounter barriers and feel good about themselves. Where this motivation comes from becomes clear when we take a closer look at the process she went through in accepting her Deafness.

As a child, Danielle noticed that she differed slightly from her peers even though she attended primary school with other Deaf pupils and joined summer camps with Deaf children. She had the feeling that something was missing, that she was not entirely complete. Around the age of 12 it dawned on her that she was 'different', which confronted her with othering from a young age. She realised that she was living in a society where you have to be 'normal' to succeed. As a result, she started struggling with her identity and felt isolated.

> *I think our culture and our society has really taught us that if you're 'normal', without any disabilities, you're privileged* [...]. *So as someone with a disability, I just felt very isolated and less than* […] *I always felt like* […] *I wasn't as important.*

During this period, she tried to lead her life 'as hearing as possible.' After a while, however, she realised this caused more problems and she needed to learn to embrace her Deaf identity. She therefore chose to enrol in a school for the deaf – an important turning point in her life:

> *'I found my confidence and my identity, I didn't try and be something I wasn't, and I accepted who I was. I was meeting so many other people that were just like me and that place became my home for almost three years.'*

It is from this moment that she started taking note of architecture. Two buildings brought its power to her attention: the Capitol of Washington, DC, which she saw every morning in the distance, left a deep impression on her; and her school building, with its open floor plan and multiple ramps offering an overview of the space. Danielle greatly appreciates this openness in architectural spaces:

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1a



1b



1c

1a–c, **Design for a Funeral Home by Danielle Koplitz, University of Texas, Austin.**

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I really started to be more attentive to architecture, to form, and what works and what doesn't, and how and why something works. Not just 'oh this doesn't work' but also wanting to find out why.

As a result, Danielle's desire to become an architect grew. While she herself may have accepted her own identity, she noticed that prejudices still prevailed in society at large. Once again, she had the feeling that she had to prove herself.

And I think that was just really the catalyst for me to […] *you know I didn't realise it at the time necessarily. No one had ever talked to me about that kind of career or opportunity,* […] *it was simply not presented. But I wanted to see and so I pushed.*

It is as if accepting her identity allowed Danielle to experience the power of architecture. For her, part of HCD is to create spaces that make it easier for people with an impairment to embrace their identity. She believes that other architects living with an impairment will also aim to create buildings in which people can thrive.

How Danielle designs

Danielle's design approach is largely affected by two elements: her own experiences and perspectives; and those of others.

First, Danielle believes that she incorporates her own 'Deaf experiences' and 'Deaf perspective' into her designs unconsciously. When looking back on the choices she made, she noticed they come from what she experiences as a Deaf person, but this is not a conscious starting point for her:

I can't necessarily isolate the advantages and disadvantages of my experiences and use that intentionally in my build process. […] *I just start with my design and my ideas, but I don't go 'okay I am Deaf what are the advantages and disadvantages of all these other buildings I have seen and how do I want to make a difference?' I just feel like I start out just like a hearing colleague and once I get to the reason and the why behind some of my design choices, you can trace that back to my Deaf experiences and my Deaf perspective, but that's not how I start out.*

Although not consciously, what she designs is clearly linked to her Deaf identity.

A first link concerns the DeafSpace principles, which she tries to integrate in her designs as much as possible. During her Deaf Studies at Gallaudet University, she learned about these principles, but in a sense, she instinctively applied them already since childhood.

we [as deaf people] *don't like anything blocking our view. Because we rely so heavily on our vision.* […] *I prefer sitting with my back against the wall, so that I can see the room with the best angle. Also, so I may see who's entering or leaving the room.*

A clear application of these principles can be found in Danielle's design of a funeral home *[*1a–c*]*. Deaf people often find it important to have a view on other floors. Danielle offers this visual access by designing the funeral home as an open atrium. The different platforms offer a view of the entire space. The columns supporting the spiral ramp and platforms are positioned so as not to hamper visibility.

I think that [project] really speaks to how I see space . […] the *niches to stand and be able to look down … With funeral homes being a temporary memorial for the deceased person. The stage in religious institutions oftentimes is an elevated platform in a flat room where seats would then be arranged around the platform. Thus, deaf people, not being able to see over other people's heads, will be seated in the front. This amphitheatre had the seats elevated at different points around the stage, allowing everyone to have a clear line of sight towards the stage. This is what I created this project on. If seats would be arranged alongside a sloping ramp along the way.*

A second link to Danielle's Deaf identity in her designs concerns what she calls 'visual noise', which is something she adds from her own experience to the DeafSpace principles. She describes it as something that is visually appealing and at the same time calming. It resembles the sound of a waterfall, but in a visual way. In her funeral home project, for instance, she creates a shadow play on the ground *[*2*]*.

I tried to create a lattice and have it cast the shadows like you see with trees and leaves. When you lay under a tree in the summer time and you've seen how the shadow of the leaves rustle on the ground. It's the same concept for this lattice that I aimed to try to accomplish […] *what I call visual noise, essentially something visually appealing for you to see.*

In her funeral home project, the pedestrian bridge connecting two buildings is located between the crowns of the trees *[*1 b, c*]*. These ensure not only privacy, but also a soothing rhythm.

For Danielle, Deaf, the visual plays a key role in

2 **Shadow play in a design by Danielle Koplitz, University of Texas, Austin.**



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architecture, and 'visual noise' shows this. Yet she emphasises that the visual noise need not to be too dominant: 'there is a certain balance that I need to figure out with visual noise, how it may be subtle without being too distracting.'

Besides her own experiences and perspective, Danielle's designs are also affected by those of other people. In line with the goal of HCD, she uses their experiences consciously during designing. However, she is aware that it is impossible to imagine exactly how other people experience architecture. That is why it is necessary to include them as a resource.

> *having users and experts within the design process, including those who will actually dwell in the space, is a prerequisite for a good design process.* [… It's] *nearly impossible for an able-bodied individual to know architectural preferences when one doesn't have a specific disability, to begin with. It's good practice to include various stakeholders to be more informed.*

Architectural education, Danielle notices, hardly addresses involving people with various abilities in the design process. She finds it important that future architects are made more aware of this. For example, the programme at the University of Texas at Austin pays attention to building accessibility only in relation to legislation. Often, however, this offers students little insight into where these rules originate from.

> *I've been given a foundation in architecture and construction technology, etc. The one piece that's missing is the disability awareness and access, for example building codes or disabled needs, it's just not prevalent.* […] *Access for different users aren't oftentimes talked about or enforced besides the bare minimum.*

As Danielle's design assignments are fictional, it is not always clear for whom she designs. Yet she does try to include other people's perspectives in her design decisions. To this end, she presents her designs to others and tries to integrate their feedback.

> *I often present the project to my partner or my housemates because they're Deaf and they have no architectural training or knowledge so it's really nice to have a fresh perspective. I'd ask them what they think and how would you make this a Deaf-friendly* […] *space, accessible to other folks with different needs. I take those things as feedback and then work with it.* […] *And oftentimes it sparks something, something new.*

This is also what Danielle did with a compact studio furniture project that contained at least three main functions of a living space, including spaces for sleeping and eating *[*3a,b*]*. As a deaf person, she finds it important that spaces have a certain openness, offering a good view of what is happening around them. At the same time, there should be enough privacy. In this assignment, she was looking for a balance between openness and closedness. The sleeping area needed to provide enough privacy, without it feeling enclosed, and she also needed something that would act as a way to get attention. She asked some Deaf friends how they would define privacy and which characteristics they believed could give a space a sense of privacy. They explained for example that their desks gave informative cues of things happening around them because they vibrated when someone knocks on the door.

> *And that came from a conversation I had with my Deaf peers and just thinking about what they would do* […]. *So, putting up a wall for them to knock on. And I thought okay well if the bed is at the top, that works because then you'll still feel the knocking off the wall below you and at the same time the deaf person can have a 360° view from up top while maintaining a clear line of sight. They're not closed off as from the top to the bottom they can still see everything while maintaining a sense of privacy that people can't see from the floor.*

In addition, Danielle tries to integrate her designs with several different uses. As described earlier, for her, accessibility needs to be considered from the start of the design process. Unlike a flight of stairs, for example, ramps ease communicating in sign language while walking. As such, they serve not only people with a physical impairment, but also Deaf people.

A concrete example of this integration can be found in her funeral home project. None of the buildings contain stairs. Everything is accessible via the spiral ramps *[*1a*]*. Rather than 'glued' onto the design as an afterthought, these form part of the concept; they are fully integrated into it.

Othering as lived experience

Studying the relationship between Danielle's experiences of being Deaf and her design approach provides insights, first-of-all, into her experiences of othering. Being Deaf, she is more attuned to the interaction with the social and built environment. For Danielle, the environment plays an important role in the process of embracing her Deaf identity and in acquiring certain architectural insights.

It is indeed society which, from a dominant hearing perspective, labels deaf people as disabled rather than different.[27] Besides sensory differences, mobility and cognitive differences also tend to be regarded as abnormalities.[28] Societal expectations and assumptions that do not fully coincide with individual identity formation may lead to struggle.[29] A large part of Deafness being different, from 'mainstream culture' and from other disabilities, however, is the communication barrier. Where there is a different language, there is a different culture; the two cannot be separated. Since Danielle embraced her Deaf identity, she is proud of her Deafness and does not consider it as a disadvantage. This aligns with the affirmation model of disability, which considers it not only as socially constructed, but also as a positive identity.[30] Danielle does not deny, however, that she keeps encountering obstacles which lead to social exclusion, isolation and loneliness. Earlier

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3a



3b

3a,b **Compact studio furniture project by Danielle Koplitz, University of Texas, Austin.**

research indeed suggests that, due to their specific interaction with built space, disabled people detect obstacles and appreciate qualities that most architects overlook.[31] In her interaction with the built environment, however, Danielle discovers that architecture also has the power to eliminate obstacles. Like other people who are deaf,[32] blind[33] or mobility impaired,[34] she becomes motivated by the obstacles that she encounters to do something about them.

Othering and the asymmetry of power in architectural education

Danielle's case, along with those of several others in our wider research, brings into view a certain process of othering in architectural education.[35] Design tutors are in a position to impose architectural qualities that they regard as important, while devaluing the particularities of students falling outside of the norm. George Balsley, for instance, a congenitally Deaf architect from the United States, who is now retired, spent half of his career pushing aside his own experiences, and functioned as 'an architect who is deaf' in a hearing world.[36] Even his own house was designed terribly for a Deaf person such as himself. It never occurred to him to infuse his embodied knowledge into his architectural practice until someone else pointed out this possibility to him. The fact that he designed himself *out* of his designs for half his life, and that, for a while, Danielle, too, tried leading a life 'as hearing as possible', testifies to the pervasiveness of ableism, in architectural education as elsewhere. Students falling outside of the norm are called upon to ignore their own non-normative bodies and minds – rather than acknowledging and using their differences creatively.

The lack of attention towards people falling outside of the norm, even in face-to-face encounters, is attributed to multiple factors: conventional architecture curricula elevating formal knowledge while frowning upon situated, experiential knowledge; a lack of diverse voices in pedagogy; and a shortage of qualified professionals willing and able to accommodate them and provide proper resources.[37] Danielle's experiences while studying architecture, and those of other architects with lived experience of disability, mark a profound gap between

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educators and students, highlighting the urgency to alter the roles that they are often forced to play. Students need to be actively resourced instead of being regarded as passive receivers of information. Educators, in turn, need to become their collaborators, who encourage different bodies and minds to touch the architecture that is created instead of serving as gatekeepers, with the power to 'allow' and 'disallow' certain inputs. As Antti Raike and others have pointed out: 'instead of directly assimilating information, students should learn to *construct* knowledge through solving problems in communities of practice.'[38]

How architecture can counter othering

Apart from experiences of othering, our study provides insights into how architecture may counter it. For Danielle, studying architecture contributed to further developing her identity or even acquiring a 'different' identity. While a 'mainstream' architectural programme may confront her with more experiences of othering, becoming an architect seems to have reinforced her self-perception, since it enabled her to use (her) difference – being Deaf among hearing students – positively. As Danielle experiences spaces in a unique way, her 'Deaf experiences' also allowed her to develop certain insights about architecture. This aligns with what Bauman and Murray describe as the specific way in which many deaf people discover certain insights that are not self-evident for most hearing people.[39] As Danielle started to see her perceptions, perspective and insights as an asset, Deafness turned from something negatively valued by society into something positively valued by herself: it benefits the architecture that she designs.

The notion of 'DeafGain' highlights deafness as a form of human diversity capable of making essential contributions to society in general and architecture in particular.[40] Studying architecture thus seems to have made Danielle's perceived DeafGain explicit to herself (in relation to her identity and self-worth) and to others (through what she designs). Whereas she previously struggled to eliminate the difference between 'us' and 'them' by trying to be the same or 'normal', as an architecture student she embraced the difference as an asset. This resonates with accounts from other designers who consider their being deaf,[41] blind,[42] physically impaired,[43] or autistic[44] as an added value for design.

In addition, and as a result, Danielle developed a design approach that designs out othering in several ways. To start with, she questions common divisions between 'us' and 'them': between non-disabled and disabled people – by recognising and valuing difference rather than devaluing others' particularities; and between architects and users – by integrating feedback from non-architects into her designs rather than considering herself to be all-knowing, just because she studies architecture. How Danielle approaches HCD, and distinguishes it from UD, ties in with related critical scholarship.[45] UD has been criticised for drawing attention away from individual experience and its qualitative or cultural aspects, for example. In doing so, it undermines human particularities – what makes people *different* and unique. By contrast, Danielle's approach draws attention to and is respectful of them. Not only does she *design out othering*, but she *designs in difference* without its negative connotations that could lead to othering.

Moreover, in her designs she pays special attention to aspects related to well-being, identity, and aesthetics. The former is not surprising: several authors have highlighted that deaf people have a good understanding of others' well-being.[46] Danielle wants to create an architecture in which people can feel good and can 'live', an innate desire that every person has to create a place where they feel safe and at home, a place that they know, identify with, and in which they can easily orientate themselves.[47] For phenomenologists, helping people 'live' is the main task of architecture.[48]

From designing out othering to designing in others

Previous studies have shown that architects with lived experience of disability possess an acute spatial awareness and sensitivity towards others.[49] How a certain social and built environment impacts them seems to nurture an understanding of how it may also impact others. Danielle, too, seems to have internalised that people – like herself – can be different, and therefore may experience spaces differently. It is noteworthy that, as a student, she thought of, and *involved*, different people and used their input as another resource in her design exercises. On top of designing out othering, she *designs in others*. In that respect, she seems to be notably ahead of her peers. Several studies suggest that disability-led design (education) is a way to counter the aforementioned pervasiveness of ableism, either through participatory methods Danielle practices or by appointing a disabled designer to an educational role.[50] Yet, both strategies are either anecdotal in architectural design studios across the globe, or pushed into the 'elective course' niche.[51]

Nevertheless, contemporary scholarship increasingly and explicitly links 'inclusion' directly with 'stakeholder participation.'[52] For instance, Bauman reports that the first building which referred to the DeafSpace principles followed a traditional design-bid-built method, with stakeholder participation peaking at the beginning of the process and fading to almost nothing afterwards. For the construction of the second building, stakeholders' involvement was both intensive and extensive. The DeafSpace

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principles have since been intrinsically linked to these high degrees of participation: stakeholders steadily collaborate with design professionals and help them to understand the hows and the whys behind the principles. A similarly strong and explicit link between 'inclusion', 'stakeholder participation' and 'architectural education' remains to be made.

Architectural pedagogy beyond DeafSpace

While data for this article were collected mainly through Danielle, further involving her network would have allowed insights into how and what she designs from multiple perspectives. This would include the ways in which it is valued by educators or informs her student peers' design approach. Indeed, Danielle's work should be further considered in its context, i.e., architectural education. As she is gaining more experience, Danielle indicates, her perception of space and how it can be used is changing. Moreover, there is a big difference between designing as a student and designing for a real client. Entering professional practice forces her to consider all sorts of stakeholders and constraints, such as limited budgets. Further research is also needed to substantiate how her design approach affects actual building users. Lastly, a deeper understanding of how architectural design may counter othering could ensue from additional case studies to further investigate the role that different nationalities and associated cultural differences, among other things, play in it.

Danielle's approach connects with foundational aspects of DeafSpace, yet builds on them in order to capture and express her own connection with her sociospatial context. Her approach and designs are inspiring and unique in several ways: from their spatial qualities (including her sensibilities for sightlines, boundaries, transitions, or visual noise) to her capacity and potential to go *beyond* DeafSpace in architectural terms, already from her twenties. As such, her lived experiences are profoundly significant in pedagogical terms.

Every architect with lived experience of disability we have interviewed so far as part of the wider research project on architectural design and disability, including Danielle, explains how challenging architectural education has been for them because of the cycle that it seems to foster – towards able-bodied and privileged mindsets. All these designers had to find a way for standard architectural education to co-habit with a parallel process of self-education; what comes out of it all is both appealing and inclusive. Their experiences clearly show that it is time for educators not only to teach students about the importance of designing in others, but also to learn from their students how to do so.

Notes

1. Don Ihde, *Listening and Voice* (Athens, OH: Ohio University Press, 1976), pp. 43–4.
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15. In the context of her education, teachings were largely focused on learning the fundamentals of Euro-centric architecture. Her own contributions (i.e., DeafSpace or any other disability-oriented designs) were not often discussed. Therefore, points she makes with DeafSpace may differ from deaf architects already working in the field where their cultural intuitions may be a manifestation of their work.
16. The case study presented here is part of a larger exploration of how experiences of being disabled affect architects' design practices and outcomes, and builds on insights obtained from the AiDA project (Architectural design in Dialogue with disAbility). The project starts from the assumption that being impaired/disabled can be an added value in design (practice) and a source for innovative and creative outcomes. Of forty-four architects experiencing disability identified around the world through literature and Internet research, eight have been studied in depth, with Danielle being the ninth. The case study at hand stands out in comparison with

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other studies conducted insofar as interviews were held during the time Danielle was an architecture student, whereas the other studies focused on practicing as well as already retired architects.

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18. For the introductory meeting, Danielle and the interpreter communicated with Camille via the video function of WhatsApp. The actual interview used a relay service (Convo Relay). Danielle communicated via video chat with an interpreter, who was on the phone with the researcher and translated between American Sign Language and English.
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Competing interests
The authors declare none.

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