

DEVELOPMENTS IN

Neuroethics and Bioethics

5

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Designing with neurodiverse children and adults: learning a different lesson with every engagement

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1. Introduction

Sarah Wigglesworth Architects (SWA) takes pride in its record of 'learning through doing,' and we like to build our knowledge base partly through undertaking project work with a clear research agenda. Often this means we are learning about new aspects of design by collaborating

with clients who are able to inform us about their world from the inside. Moving into a new area of expertise or building type helps challenge our prior knowledge but also permits insights by encouraging different perspectives on common problems.

Since committing in 1991 to addressing climate change, with its attendant issues of social equity, SWA has established a dedicated Equality, Diversity and Inclusion (EDI) team aiming to raise the discourse and inform ourselves on aspects of design that affect our work and could be blind spots. This could encompass issues that impact clients & users, our own workforce or our approach to working and design processes. We explicitly gravitate toward work that carries positive social value to our team and to those affected by our work, whether this be occupants or collaborators. When targeting or undertaking projects we look for opportunities to leverage greater knowledge or value by building on what we already know. Sometimes this is with the blessing of, or in collaboration with, our clients and users and sometimes it remains a private ambition or additional service within the SWA team.

We have also established a modest research fund, with time off to carry it out, paid to an individual with the passion and the curiosity to explore a topic of great interest to them. We capture the learning for future reference and to ensure the whole office can benefit from the knowledge gained. By sharing this work and regularly hosting other EDI-focused reviews and project shares with the office, we hope to spread knowledge, forge a collective culture and create a learning loop that feeds back into actions within our project work.

We have been fortunate to work on several projects that address designing for neurodiverse and impaired users. This chapter will explore our approach to two different projects, one a completed building and one a research project that aims to conduct primary research into the relationship that people with impairments have with the built environment, exploring methods of engagement and what makes an accessible, inclusive space. These projects build on research relating to other types of specialist groups such as older people and children.



2. Designing for neurodiverse children: Mossbrook school, classroom for the future

The Classroom of the Future (2001–2) was a project funded by the DfEE aimed at exploring prototypes for the future of classroom design (Fig. 1). Local authorities were invited to bid for funding exemplary projects

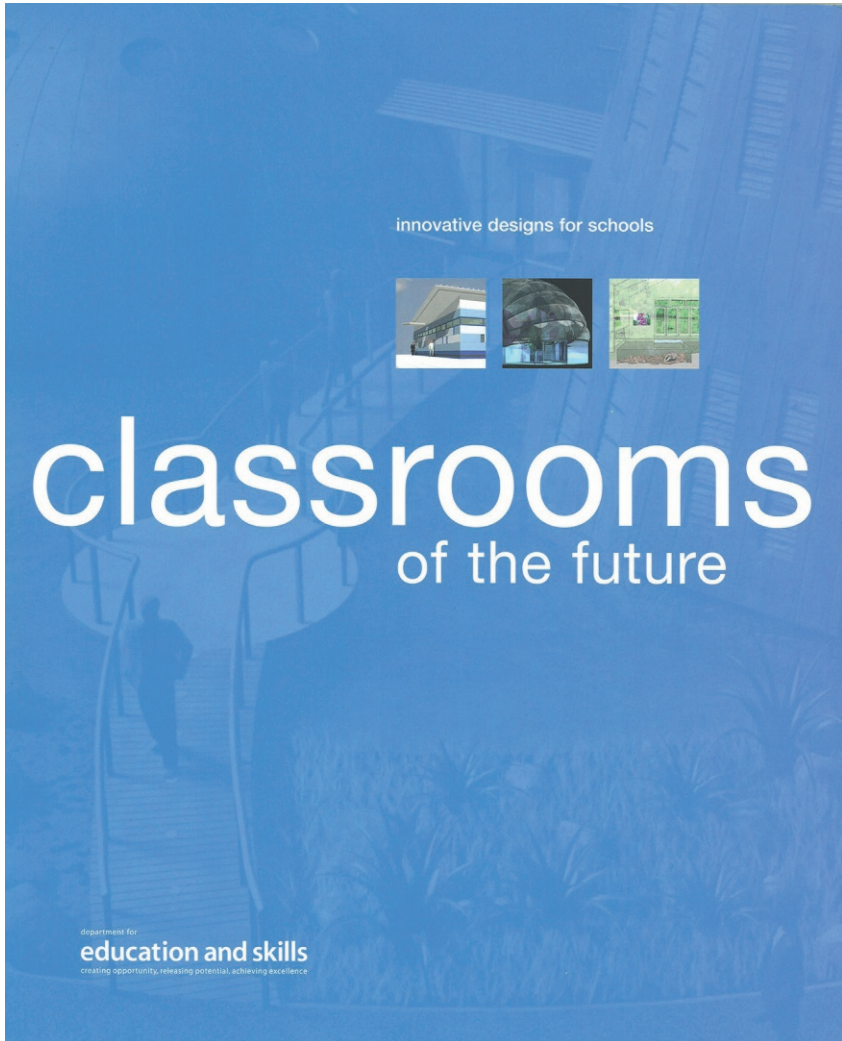


Fig. 1 Front cover of the publication *Classrooms of the Future* by DfEE. *Image courtesy UK Government Department for Education.*

aiming to explore what form and character a Future Classroom might take, with the express remit promoted by the DfEE to take on board the theme of technology in the 21st century classroom. We understood the DfEE to be interested in how information and communication technology (ICT) could enable an enhanced learning experience for children growing up and naturalized to ICT. Yet this agenda provoked us to consider how the

school client could best use ICT as a tool to engage their pupils. We had no idea how to address this at first, which was challenging, but as the project progressed ideas began to form and, in their final manifestation the proposals to incorporate ICT took on an imaginative and exciting aspect.

The Classroom for the Future at Mossbrook Special Primary School was one of four projects that won funding in the Sheffield area. Our client was a school teaching mainly autistic children, but the new classroom was also intended as a shared resource for pupils from all schools throughout the Sheffield area. The pupils at Mossbrook had been assessed as having learning difficulties ranging across the autism spectrum as well as physical restrictions, so the classroom had to address a wide range of needs. This dual brief is of interest, because it demonstrates that, by looking at design challenges from the viewpoint of the (generally excluded) ‘other,’ we can make a world that embraces the needs of and enhances experiences for a more diverse range of abilities.

2.1 Teaching science to children with autism

The school teaches the National Curriculum. The project brief, developed by school staff, requested a science teaching space designed primarily for learning about the natural environment. For children with learning difficulties, science at Mossbrook is taught in a demonstrative and experiential way, through direct interaction with the qualities and physical characteristics of the world around them. We felt this offered the potential to work with the traditional principle of science, which is the direct observation, recording and interpretation of the natural world. This idea can encompass everything from experiential encounters through visual exploration to data recording and technical measurement. In acknowledging climate change, there was an additional drive to link pupils with the broader ecologies around them.

In the Future Classroom, children learn about sustainability by discovering how they form part of a large, complex set of related interactions with their environment. In this context we felt that technological gadgetry and tactile and sensory experience could be brought together as twin and complementary ways of experiencing and interpreting the world. We saw the Classroom of the Future as a learning apparatus in its own right. This meant thinking about the space within the building as a vessel for capturing and manifesting phenomena—using light, space, texture and materials as primary stimulation, in addition to the imaginative incorporation of virtual technology. As regards the latter, we sought to go beyond the expectations

of the DfEE and think critically and broadly about what kind of technology could meaningfully engage children at Mossbrook in learning science. This is discussed later in the chapter.

2.2 Engagement with the school

Engagement was undertaken by postgraduate students from the University of Sheffield Department of Architecture who consulted widely with staff and pupils as part of the process of brief writing. Students worked with small groups of pupils and used props such as image cards to establish what they would like to see in their new classroom, and the kind of materials, atmosphere and feel it should have. Pupils were also invited to draw their ideal school. As expected, many focused on the outdoors. Some of their proposals were particularly imaginative, mentioning towers, bridges, space travel and rockets. Others wanted to see a McDonalds on site! SWA also carried out extensive discussions with key staff members to understand how teaching worked in the school, how pupils are managed, how dining took place and how classes were organized and run. We spent time at the school as observers of all these aspects.

These two elements of the engagement indicated the breadth of issues the design had to address, and while the big imagination of the pupils could not always be delivered, the pupils' ideas were formative in helping us remain ambitious for the classroom despite the need to address practical matters and safeguarding.

Knowing nothing about designing specifically for autism, we learned a good deal about the challenges through our many conversations with experienced and committed staff, in particular the Head Teacher Maggie Brough and her Deputy and Science Champion, Heather Wood. Having made a bid to the Local Authority to win the funding, they were clear about their intentions and more than generous in helping us understand how we could address the needs of the children in their care. Working so directly with knowledgeable and enthusiastic staff gave us confidence in what we were doing, allowing us to create a nuanced proposal that answered to the school's ambitions.

2.3 The opportunities of location

Mossbrook Special School is located on the very outskirts of the city, in Sheffield's green belt. Close to fields and farms, it has a rural character that offers great benefits for experiencing and being in nature. A swimming

pool within the school structure is a controlled space for assisted exercise, however, for all children (some have restricted mobility, some are poorly sighted, some are hearing impaired), being able to access the outdoors is critical for their enjoyment, stimulation, health and wellbeing. The potential the setting presented for a relationship with the natural world gave us the opportunity to facilitate engagement, sensory stimulation, immersion and observation with the natural habitats of plants and animals all around the Future Classroom. (Figs. 2–4).

Over a number of years the school had been developing a pond as a valuable teaching resource for the children, but which was difficult to access due to steep slopes all around it. Following discussion with the school community it was decided to locate the building on the edge of the playground, close to the pond. Due to planning restrictions on green belt development, we pinpointed a site on the footprint of a temporary structure housing an indoor soft play area or 'Ball Pool.' This allowed the new building to form a gateway into the Conservation Area so that access could be controlled safely. The main teaching space looks directly over the pond and to the north, the Future Classroom adjoins the school's Sensory Garden. As a result

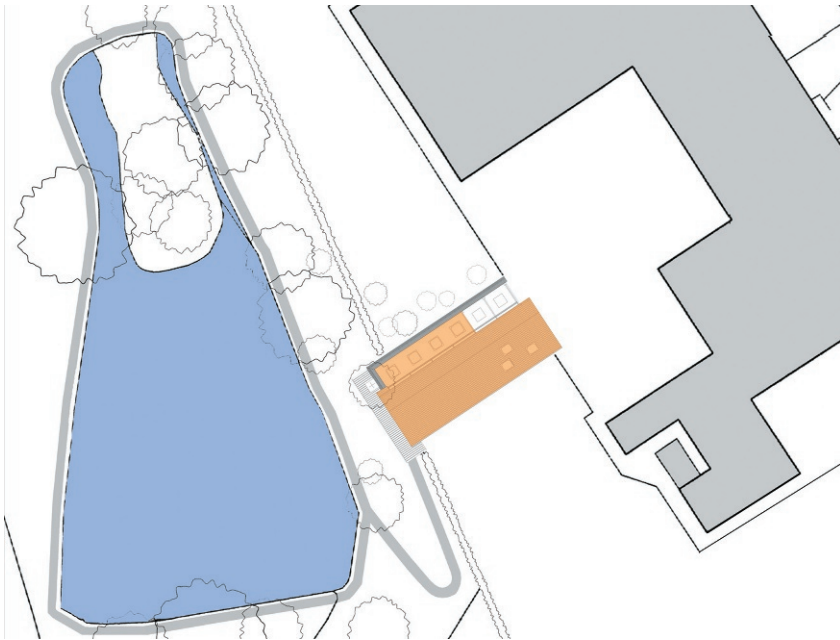


Fig. 2 Site plan showing classroom adjacent to the pond and school. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*



Fig. 3 View of pond 1. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*

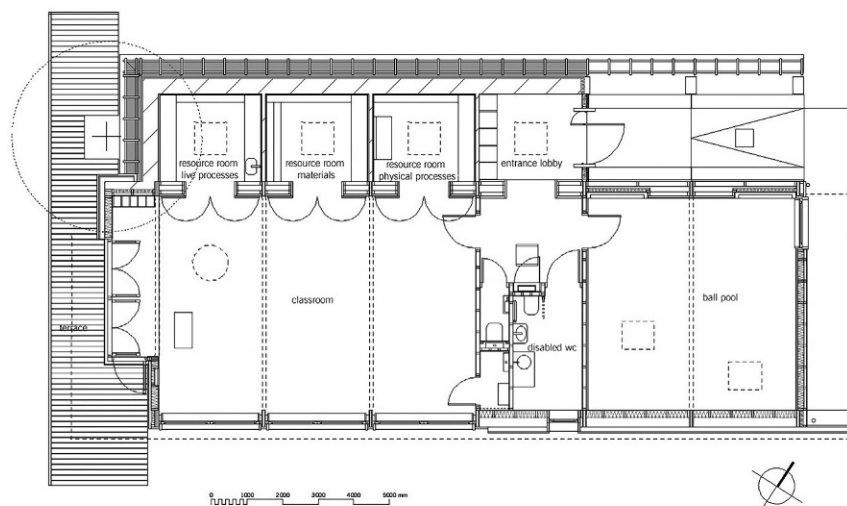


Fig. 4 View of pond 2. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*

of the Ball Pool's displacement, our brief expanded to include a new space for indoor exercise in addition to the classroom itself. This deep connection to nature is a celebrated aspect of the final project, however, if planning constraints had been less restrictive, SWA would have liked to explore a location which was better connected to the main school as a means of further improving the accessibility and usability of the Classroom and Ball Pool all year round.

2.4 Design for autism

Understanding that children with autism often respond better to simply-delineated, clearly-contained spaces (Fig. 5,) the classroom itself is a large, intelligible room whose volume is created by a series of thick portal frames made of plywood and softwood. We employed a variety of materials in its fabric as primary stimulation. Our idea was to incorporate different substances in its construction so the children could learn about them through close scrutiny and interaction—another example of the building itself being used as a tool for education. The classroom's geometry helps sound attenuation and its ceiling is lined in acoustic board to promote optimal conditions for comprehension and reduce distracting noise. Externally the Future Classroom is clad in a three successive layers—corrugated steel,



mossbrook school - classroom for the future

ground floor plan

Fig. 5 Labeled ground floor plan. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*

oak and polycarbonate sheeting—which progressively peel away to reveal different glimpses of the inside, while simultaneously framing different views of the exterior world (Fig. 6).

The classroom has good daylighting from three sides. Lit by high level glazing to the north (Fig. 7), it has three child-height south-facing windows overlooking a meadow and full height glazed doors giving onto the pond area to the west. The south-facing windows are set deep within the thickness of the portal frames which creates an overhang to avoid overheating and glare, though they are also fitted with blinds so daylight can be moderated (Fig. 8).



Fig. 6 View of overhang with three cladding layers. *Image owned by Sarah Wigglesworth Architects. Courtesy Sue Barr.*



Fig. 7 Collage of building showing clerestory glazing to north. Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.



Fig. 8 Collage view from south lawn. Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.

Three top-lit resource rooms along the north wall of the building store props for teaching. These are categorized by Material, Physical and Biological themes and their doors are colored accordingly for easy recognition. To create a different atmosphere in each, one was lined in felt, one in metal and the third in wood. Equipped with shelves and seating, these rooms also allow small numbers of children to gather and focus on specific demonstrations or to study quietly away from the remainder of the class (Fig. 9). They provide a breakout



Fig. 9 One of the small resource rooms being used for small group teaching. *Image owned by Sarah Wigglesworth Architects. Courtesy Peter Lathey.*

room for one-to-one teaching and can offer a respite space with a calm & contained atmosphere when a pupil feels over-stimulated. This is an example of where different needs can be addressed through the provision of specific, yet flexible, spaces and where each space can have several purposes besides the one initially envisaged.

In and around the site, evidence of bats, badgers, foxes and other wildlife showed that the building should act as host (not deterrent) to their patterns of occupation. (Fig. 10) We set a glass window into the floor allowing a view into the void under the building for surveying the movement of living things in the gradient below. Another 'window on the world' was located in the lobby floor, this time, a virtual window housing a plasma screen. We hoped to encourage children to closely observe physical and natural phenomena under safe, supervised conditions. The sensory garden meets the edge of the building by turning vertically up the living crib wall while providing a protective, insulated face to its exposed north edge



Fig. 10 Collage showing co-location of the classroom with nature. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*



Fig. 11 View from playground with crib growing wall. Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.

(Fig. 11). Pupils that have difficulty bending down are able to garden at heights to suit them, making use of pockets of soil housed within it. A ramp zig-zagging down the slope to the pond encourages wheelchair users to enjoy the waterside alongside the other pupils (Fig. 12).

2.5 Enhancing the learning experience

The brief challenged us to find relevant and appropriate solutions to the use of new technology that would augment the learning experience of these children. Given the mission pursued by Mossbrook for haptic experience of phenomena as a valid way of learning science, we were looking for a way to use digital technologies to augment the physical. A grant funding call from the Royal Society of Arts' 'Art for Architecture' programme drew our attention to the potential of collaborating with an artist at the forefront of experiments in the use of digital capability. We were privileged to work with artist Susan Collins to develop, with the children, an art project that addresses the aims and ethos of the Classroom of the Future. Collins works with virtual and electronic media, exploring their relationship with architectural spaces and her involvement in this project added another dimension to the incorporation and interpretation of technology in the context of the teaching of science and environmental issues.



Fig. 12 Exterior with ramp and web cam. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*

Collins and ourselves developed four projects relevant to the Future Classroom (Fig. 13). In one, web cams located on and under the building and overlooking the Conservation area are triggered by body heat; these record animal movement and direct images into the Classroom through the plasma screens located in its floors and walls (Fig. 14). In another, a boat on the pond was fitted with an underwater camera and children were able to remotely control its movement to observe underwater pondlife (Fig. 15.) In one of the resource rooms its rooflight was replaced by a Camera Obscura projecting over the rooftop. (Figs. 16 and 17) Using a car jack to focus the image on a small round table in the room,



Fig. 13 Sarah Wigglesworth and Susan Collins collaborating on the Art for Architecture project. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*



Fig. 14 Interior of classroom with plasma screen. *Image owned by Sarah Wigglesworth Architects. Courtesy Peter Lathey.*



Fig. 15 Launching boat with underwater camera. *Image owned by Sarah Wigglesworth Architects. Courtesy Susan Collins.*



Fig. 16 Camera obscura on roof. *Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.*



Fig. 17 Children playing with the camera obscura. *Image owned by Sarah Wigglesworth Architects. Courtesy Peter Lathey.*

children are able to watch real-time images of the exterior from the comfort of their classroom.

The fourth project involved the new Ball Pool. This simple, square room full of soft play equipment was a favorite with children, allowing them to take playful exercise with the supervision of teachers. Here, Collins worked with the children to develop musical sequences that could be played back into the room through tiny speakers located in the wall mattresses. When hidden LED beams are broken through the children's movement in the soft play, the music plays. The room quite literally sings, as the bodies of the children trigger it in sequence (Fig. 18).

Other ideas incorporated in our design involved the development of a clear Perspex sink, located within the classroom, for demonstrating the



Fig. 18 Ball pool play space. *Image owned by Sarah Wigglesworth Architects. Courtesy Peter Lathey.*

characteristics of water—floating/sinking, freezing/thawing, wet/dry, wave motion, etc. (Fig. 19) In the lobby, outside the Changing Places WC, we put a transparent plastic cistern behind a window. This was a fun way to demonstrate the cause-and-effect of the handle on the water, which is usually hidden from view! (Fig. 20).

This project has generous space standards, including door widths and lobby areas, liberal storage (including boot/wellie cubbyholes), excellent daylight and an expanded brief that aimed at creating a memorable indoor and outdoor environment for learning science. Nonetheless, it was the product of a dedicated and knowledgeable staff that had high ambitions for their pupils and we are grateful for the time and energy they offered



Fig. 19 Children playing with water in the bespoke sink. Image owned by Sarah Wigglesworth Architects. Courtesy Peter Lathey.



Fig. 20 WC cistern. Image owned by Sarah Wigglesworth Architects. Courtesy Sarah Wigglesworth Architects.

to help us develop this project. Working collaboratively with children, staff and artists showed how important it is to address directly the needs of users, and tap into years of educational experience. We were privileged to have had this opportunity.



3. Designing with neurodiverse adults: What does an accessible building look like?

Mossbrook School, Classroom for The Future is a built project with extended briefing and learning built into the process. It was conceived and delivered with children in mind, focusing on their specific, yet diverse set of requirements for a learning environment. That said, we of course design places for both children and adults and opportunities to improve our knowledge are not always in the form of buildings. With all built projects, there are wide-ranging constraints that can affect the extent that early ambitions for a project are realized. This can be a frustration; however, self-initiated research projects form a platform for us to continue to test unrealized ideas and equip ourselves with the relevant experience or knowledge to help demonstrate ways that these ambitions can be realized in future, ‘real’ projects.

An openness to other methods of learning is a critical part of SWA’s culture and often requires a creative approach to practice. This second project is self-made and is an example of how SWA ‘layers’ cultural capital across time and space. This time we focus on adults and explore the briefing process itself, aiming to demonstrate how engagement with real lives can begin to undo the potential negative stereotypes that can flow from too narrow a concept of ‘user.’

3.1 Spotting opportunities to learn

Sarah Wigglesworth Architects strongly believes that good architecture is supported by knowledge and passion and that making time for research and reflection is central to enabling this. We are a process driven practice who engage with architecture and all of its mess and complexity as a continuous learning loop. Both as individuals and collectively, we are at our best when we are learning something new about what we feel passionately about—caring for people and our planet.

Led by one of our Architects (and Diversity Champion) during summer 2020, the team at SWA collaborated on an essay competition which asked entrants to consider how the design and construction of homes and neighborhoods could develop over the next 50 years in order to be inclusive regardless of impairment. The essay was one of 10 shortlisted and went on to be awarded a runner up prize. The winning entry was from another Architect, whose essay calls for a re-evaluation of town planning and

national policy to ensure accessible housing is delivered in all new developments in a top-down approach.

We wanted to write this essay for a number of reasons: our Equality, Diversity and Inclusion agenda, continued interest in inclusive design and the opportunity to conduct research which could meaningfully impact the work we do as designers. Rather than simply pointing out all that's wrong in our industry, entering this competition was an opportunity to propose a framework for ethical change which could help to inform actions, as well as discussion. Internal workshopping, sharing knowledge and experiences and conducting desk-based research all formed part of SWA's process when writing the essay.

The essay competition was organized by Habinteg Housing Association to celebrate their 50th birthday. At the heart of Habinteg's ethos is a belief that having an accessible home in an inclusive setting can transform the lives of disabled people and those around them. They are a leading social housing provider, delivering and promoting accessible homes and communities across England and Wales. SWA share Habinteg's vision for communities which include places to live that meet a diverse range of needs and provide the highest levels of independence, choice and control over daily life.

The essay argued that to have the best chance at creating inclusive neighborhoods, we need a diverse set of designers. It proposed a simple, three step framework that designers could use as a guide to implement changes in their design thinking and processes. Step one increased diverse community voices through engagement and co-design, step two was increasing the diversity of the profession (partially facilitated through engaging hard to reach young people in architecture during step one) and step three introduces a continuous feedback loop of diverse voices and inclusive processes (Fig. 21).

3.2 SWA research grant and a piggy-backing approach

In order to embed research more firmly in SWA's culture and support all staff in developing their own capabilities, interests and careers, SWA offers a bursary once a year to enable a member of staff to take some time out for such a pursuit. The project proposal can cover anything, but should enhance interests, provide stimulus and have a clear output that will feed back into the work of the practice, helping to build up intellectual capital. This could include a short course, a visit to study a building or place of interest, making

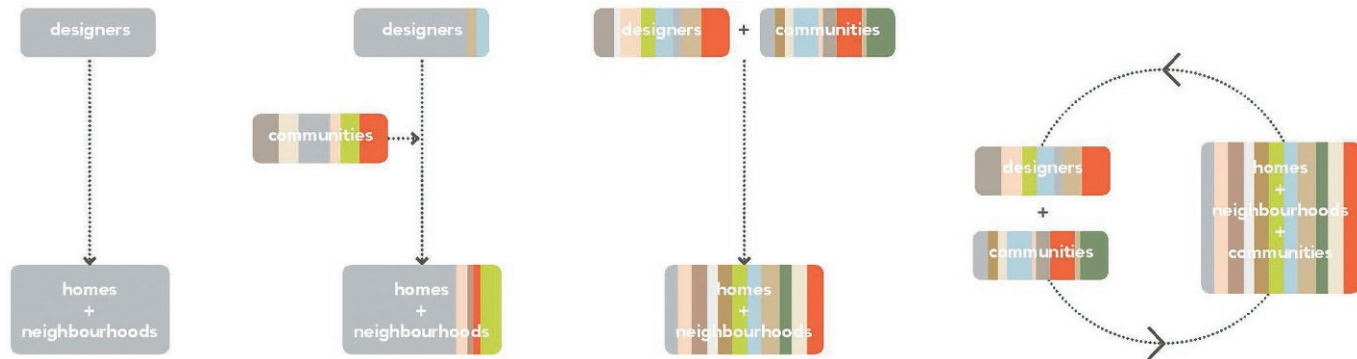


Fig. 21 Diagrams illustrating the existing scenario and three-step framework to increasing diverse voices within the design and delivery of our homes and neighborhoods. *Image owned by Sarah Wigglesworth Architects and Clare Bond.*

something explorative or learning a new skill. A key aspect of the research has how it is communicated back to others both in the practice and beyond. The SWA research grant began in 2018 and projects have included exploration of traditional timber joinery through furniture making and a photographic study of SWA's dance studio project, exploring form and materiality in relation to function and resulting in the publication of a zine.

In Summer 2021, SWA's research grant was awarded to conduct primary research into the relationship that people with impairments have with the built environment. This research project piggy-backs onto the Habinteg essay which was completed a year earlier. Step one of the essay framework was meaningful engagement with people with disabilities and the research grant puts the first step into practice by exploring a method to find, listen to, understand, record and share diverse voices and experiences.

3.3 Opening a conversation, listening to diverse voices

In collaboration with Habinteg Housing Association residents and insight groups, we have been seeking to update and deepen our understanding of how adults as well as children with neurodiversities and other physical impairments navigate the built environment within everyday life. Four people living with a variety of abilities took part in the research, which consisted of individual interviews focused on their unique lived experience. The questions focused on everyday life at home, but also addressed people's ability to participate in life outside of home, at workplaces, entertainment spaces, parks and transport.

Neurodiversities are wide-ranging, but often form part of an individual's complex mental and physical needs. Three of the interviewees had lived experience of one or more mobility and dexterity impairment, including paraplegia, immune system sensitivity, multiple severe chronic illnesses (including Mast Cell Activation Syndrome, Ehlers-Danlos Syndrome and Crohn's), hearing impairment, neurodiversities including learning disabilities and mental health issues, including depression. One of the interviewees was, for 12 years, the sole carer for her severely disabled late husband and generously shared her experience of navigating the built environment alongside him.

The interviews were virtual due to Covid-19 and although it was disappointing to not meet the interviewees face to face, the online nature of the research removed any physical barriers which could have made taking part in the project inaccessible. Although physical barriers

were removed, it was important to acknowledge neurodiversities when preparing for this engagement. Many people (regardless of their neurology) don't like the feeling of being unprepared, therefore, interview questions were sent out in advance to allow the interviewee time to prepare and reflect on their answers, should they wish. All interviewees were offered guidance on using MS Teams ahead of the interview taking place, alongside ongoing, pre-interview correspondence to help build a trusted relationship ahead of the main engagement. Each interviewee was asked the same six questions and additional time for more detailed, personal conversations was allowed for in the meeting invite. It was important that videos were on for the interviews to help with social cues. and communication, however, advance warning of this requirement was given to allow interviewees to raise any concerns prior to the interview and avoid any surprise or distress during the call. The interviews were audio-recorded, but it was agreed in advance that the recordings would not be shared externally.

3.4 Evidence gathered from the recordings

The experiences shared during the interviews were highly personalized. That said, common ground was evident in some of the challenges faced by each person. Unsurprisingly, access was a shared frustration, as well as a lack of correct knowledge or understanding from able bodied people.

The discussions included conversations about what makes a space joyful and examples of accessible and inclusive public places. We concluded that accessibility relates to what is physically built. Inclusivity is a mindset, a willingness and an empathy by the designer for those who work in or occupy physical space. Consensus emerged around specific high-profile places that were deemed by these users to be successful. These included the Royal Festival Hall, the British Film Institute and the British Museum in Central London. A visit to the Ashton Gate Bristol City Football stadium was also referenced as a seamless experience for a wheelchair user. It was also noted that many of these examples are historic buildings with heritage value, demonstrating that this is not a barrier to accessibility or inclusivity, despite often being used as an excuse for poor user experience.

At Mossbrook School, sensory experiences were created for neurodiverse children, including music activated by the body running, jumping and playing. During the Habinteg interviews, one interviewee spoke

enthusiastically about the singing lift at the Royal Festival Hall, Southbank Centre in London. It is the only lift which accesses all six floors of the building and is used by those with specific access needs. As visitors travel up and down in the lift they are accompanied by scales in four-part harmony which correspond with the progression of the lift—a wonderful example of how responding to physical needs can also celebrate neurodiversities in a joyful and engaging way. When talking more generally about lifts and the value of independence, one interviewee who also uses a wheelchair noted that they are unable to turn around once they have entered the lift. If the buttons to operate the lift are only found next to the door and they didn't reverse in, they are unable to use the lift on their own.

Management of spaces and social expectations were also discussed. One interviewee had very specific, medical dietary requirements—inclusive, indoor dining opportunities alongside cultural and civic buildings, where they could bring their own food while allowing friends to purchase something from a vendor, were very hard to come by. One interviewee asked 'where do guide dogs drink water or go to the toilet when their owner visits concert halls or cultural buildings?'

During Covid-19, people were told to 'stay local.' However, it became evident through the discussion that many smaller, local, independent companies were unable to accommodate those with impairments. This was sometimes due to a lack of accessibility, but sometimes a lack of inclusivity and wrong information given prior to a visit. One interviewee did speak highly of the Picture House in Crouch End, North London. A positive of the Covid-19 rules meant that there was more space available in these venues. Also, that table service became much more commonplace meaning those who were unable to order at the often crowded (and high!) bar did not feel excluded, for example.

A heart-warming conversation with one interviewee focused on the needs of family and friends as much as their own—an elderly mother who walks with a stick and a partner with a broken toe. This interviewee uses a mobility scooter and flagged that they didn't experience the same pain or fatigue in scenarios that required lots of walking. A small move such as providing sufficient space next to a bench for a mobility scooter or wheelchair to pause without blocking a thoroughfare allows for a more inclusive experience for all users. All of the interviewees shared the view that a truly joyful space is one where you don't notice it's been designed for accessibility—it is inclusive of all of its visitors' diverse needs.

3.5 Recording and sharing knowledge

The interviews provided a valuable user insight, but the challenge was to explore how to take the information learnt from the interviews so it could be shared in a meaningful and engaging way.

The first option considered was to write up the interviews verbatim (as a good researcher would do); this felt like it would be the most accurate representation of each individual and their experience. But we also feared that few people were likely to read (and genuinely process) that quantity of text. Text that included the ‘ums,’ ‘erms’ and general ‘chit-chat’ which was an inevitable (and enjoyable) part of the interview process but might not make for the most concise, accessible or educational documentation.

We decided that an edited write-up, although now incorporating elements of the recorder’s biases, would be more to the point and arguably a more useful resource for the recorder, SWA colleagues and broader peers. But this common way of recording interviews favors those whose strength is reading. This research wanted to explore different methods of communicating engagement to designers and other stakeholders, celebrating variety and diversity within both processes and people; a method that could be of increased benefit to those communicating the information, as much as those receiving it. Regardless of neurology, people learn differently. Some can learn in a variety of formats, others, often autistic people, generally favor one learning style and dyslexic people often find words more challenging, for example.

As Architects and creative, visual learners, we felt we would benefit from something visual, graphic and colorful. As a kinaesthetic learner, it was acknowledged that physically making something would further strengthen the connection to each person’s story. The collages that have been created are as much a reflection of how the maker learns and communicates information as they are a representation of the interviews themselves. So a range of collages were the result, and are illustrated in [Figs. 22–25](#)

Accessibility takes many forms for many different people and we hope that these collages go some way in demonstrating the individualities and complexities of each person’s experience and the importance of meaningful engagement to increase diversity of thought within every design process. By continuing to be curious and investigate how others use, understand and navigate the built environment we hope to assimilate new insights that can help designers such as us improve the experiences of a wider range of people.

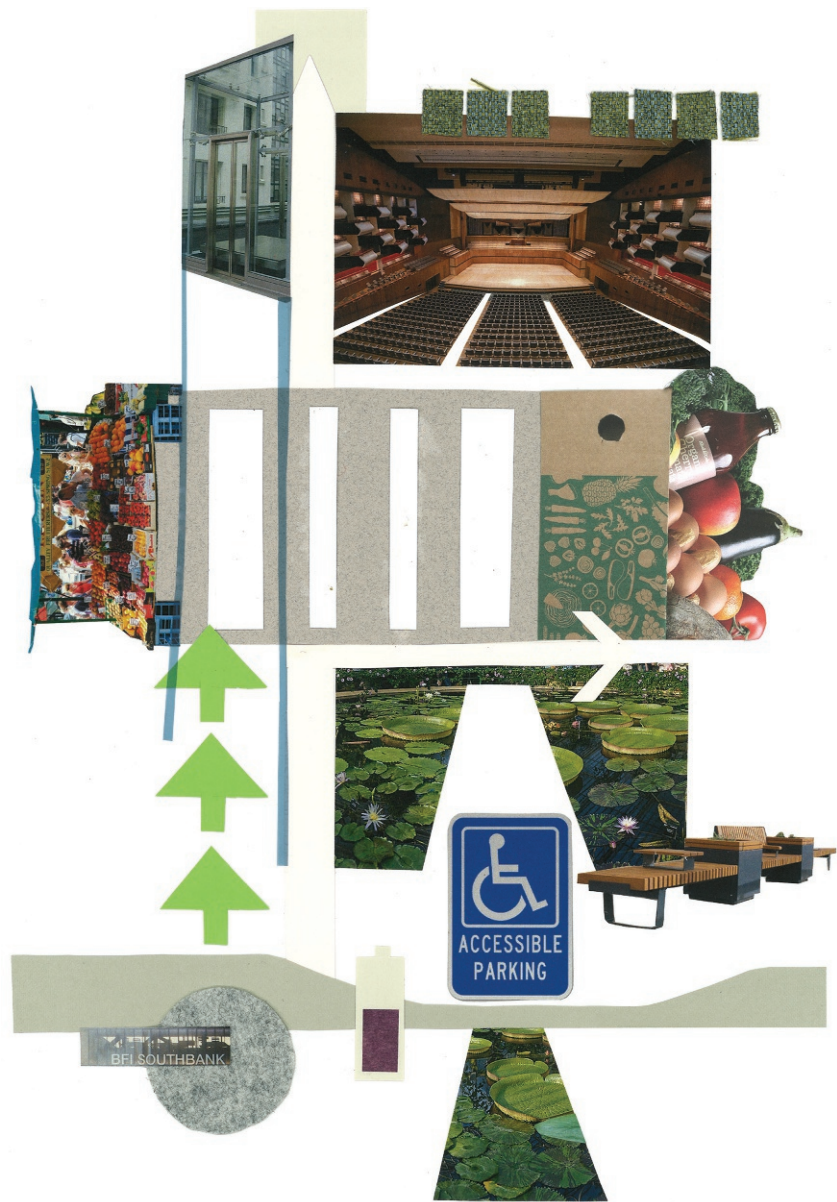


Fig. 22 Collage created based on an interview with Jai. Image owned by Sarah Wigglesworth Architects and Clare Bond.



Fig. 23 Collage created based on an interview with Amy. *Image owned by Sarah Wigglesworth Architects and Clare Bond.*

3.6 Acknowledging biases and celebrating experience

As authors of design, it is critical that we acknowledge that we all have biases based on our own lived experience, therefore, it must be said that these collages are the maker's interpretation of each interview and it is inevitable that they will have been influenced by their own biases.



Fig. 24 Collage created based on an interview with Andrew. Image owned by Sarah Wigglesworth Architects and Clare Bond.

One might conclude that architecture will never be free of the bias of the designer, documenter or decision maker. Yet the point of seeking different viewpoints is to acknowledge this very fact: that there is no unbiased truth, only knowledge interpreted through experience. This is the reason it is important to include a variety of voices, so that the designer



Fig. 25 Collage created based on an interview with Angela. *Image owned by Sarah Wigglesworth Architects and Clare Bond.*

can acknowledge different outlooks and assimilate them within their creative process. Recognizing that we each have a particular perspective granted us through our personal experience means we need to be alert to the perspectives of others, and make this a consideration in our design work. While it is unlikely that we will always satisfy everyone's needs and desires, it is the designer's role to inform themselves of different views and assimilate the full breadth of knowledge of how their work will be understood and received.

Prevailing processes, theories, regulations and policies contain implicit bias and favor specific groups of people. Yet we rarely see this because it is so normalized in everything we do through our education, training and practice. Inclusionary tactics aim to question this, bringing insights that expose this bias and seek to bring other voices into the equation. Diverse voices will enrich and broaden the relevance and appeal of our work and bring important insights for design. It is hoped that this research and these collages go some way to demonstrate the individualities and complexities of each person's experience and the importance of meaningful engagement to increase diversity of thought within the design process.



4. Conclusion

The two examples showcased here take different trajectories: one is a conventional building project with extended briefing and learning built into the process. The second explores the briefing process itself, aiming to demonstrate how engagement with real lives and experiences can begin to undo the potential negatives (and broad stereotypes) that can flow from a too narrow concept of 'the user.' Both projects illustrate the complications in society's acceptance of the 'universal' human, so often the subject of architectural guides and source books. When considered together, they illustrate how our practice's research works to open our minds to how people other than ourselves experience and understand our work. We think of our practice knowledge as a set of sedimentary layers, one overlaid on another over time which we can access by excavating through the strata. Thus, while these two projects are from very different eras they can coexist and be accessed in a conversation across time and space, allowing us to transfer knowledge in one area (and era) to another.

Critically, we hold that it is principally processes and systems that give rise to the built environment we make, and aesthetics are only part of

those systems. By placing importance on thinking about our working method and how we communicate with our clients and users, we ask difficult questions about our own bias—how can this be mitigated and the experience become enriched for all involved? It is the context, who are the people included and what are the questions asked, that will offer the clues to the resulting design? Accordingly, we approach design, as we did at Mossbrook, with a recognition of our lack of knowledge as much as we acknowledge our skillset, and we aim to expand this through engaging with the experiences of those using our work. Documenting our work, be this questioning a received brief in collaboration with users, or through monitoring users' reactions and experiences of our work, or learning how other buildings have played out in diverse lives, helps develop greater empathy and, we believe, ultimately produces more relevant and enjoyable design work.

In considering the particular experiences of individuals engaging with the built environment we acknowledge the specificity of their understanding. Universal Design seeks to embrace all experience and find an accommodation for the whole of humanity. We take a slightly different view. While knowing that all human experience is in some sense specific to the individual and that we will never be able in a single design to address the wide breadth of human experience and engagement with the built environment, we nevertheless believe there is great value in examining unique perspectives in order to challenge mainstream assumptions. We do not strive for the perfect solution implied by Universal Design. Rather, we see these experiments in marginal experience as expanding a horizon in order to question received wisdom. And, in doing so, we hope to address the needs of specific users too.

4.1 '.....but what does an accessible building look like?'

The potential changes that could come about in our built environment by thinking in an inclusive way are wide-ranging and could be manifest in many ways: through organization, dimensions, colors, textures and contrasts, materiality, gradients, visual language, lighting and many, many more, encompassing the design of the whole public realm. These are the tools of design but the product depends on the designer's skill. Unless we get the processes, conversations and policy in place, we will not make changes that could normalize inclusive design. Just as in our response to the climate crisis, the ultimate aim would be for accessible architecture to be so commonplace

that it is not even recognized. The question of what an accessible building or environment would look like misses the point: for we are still in the age of learning what this could be, experimenting within the confines of the current context. Huge possibilities could be heralded if we were to think more inclusively and ethically within the framework of inclusivity. The studies illustrate our small contribution to this experiment. It is by no means the end of the story, but just the beginning.

DEVELOPMENTS IN

Neuroethics and Bioethics



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