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DESIGNING OUT BARRIERS FOR DISABLED: TOWARDS AN INCLUSIVE URBAN ENVIRONMENT

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Abstract
Disabled people often struggle with the complexities of our built environment, hindering their full participation in contemporary urban life. Our built environment is considered relatively well organized for the various groups in society, despite disabled people continually encounter numerous barriers in their everyday lives. Accessibility and social inclusiveness are the major challenges for the active participation for the persons with disabilities in the urban world. This study looks at different theories of disability, relating them to the accessibility and inclusive design concepts. The lack of legal obligation to implement the inclusive solutions for authorities and the training and disability awareness has led to the environments full of barriers of the disabled community. The research has explored the types and nature of these barriers faced by persons with diverse disabilities for their integration into the urban society through bringing up to the light, a user perspective. The analysis of the findings has identified the barriers in four categories, either related to poor physical design, inadequate organizational or policy considerations, negative attitudes, and stigmatization or the technological deprivations. The latest approach to overcome these barriers along with the use of accessibility standards and policy legislations was emerged as "the smart solutions" related to the technological innovations in our cities. Recommendations have been formulated according to the analysis for maximum inclusion of disabled in our society by overcoming the barriers identified in the research. Extraordinary measures, such as laws, technical solutions, accessible technologies, disability awareness and training programe, have to be defined accordingly, adjusting to specific and perhaps contrasting needs for an inclusive urban environment. After all, the disabled population is the largest minority group on the planet, and is the only minority group any of us could join at any time.

Introduction

"The physical and spatial configuration of the built environment suggests that urban design practices are inattentive to the needs of disabled people. From the absence of induction loops in public buildings to the dearth of accessible transport, disabled people's urban design needs appear to be an insignificant concern to those involved in the production of the built environment. There is, however, little knowledge of how the needs of disabled people are

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defined and incorporated, or not, into the design and development of the urban environment." (Imrie,2000)

Urbanization has emerged as the most significant global trend of the 21st century. It is estimated that by 2050, 66 % of the world's population (6.25 billion people) will be living in the cities. (UNDESA,2014). This unprecedented expansion in population demands a rethink of design of our urban centres to support a more sustainable and inclusive environment. According to WHO and World Bank report (2011) around 1 billion or 15 percent of the world's population is living with some form of disability. Our urban environments often act as barriers towards the inclusion and active participation of the disabled in our economic and social development of cities. A person with disability continually faces the challenges of lack of accessibility to the built environment (houses, public buildings, roads, parks) and information, and also to the provision of urban services (including health, education, transportation, sanitation and water, emergency and disaster response). Other barriers such as negative stereotyping and stigma also add to the segregation, exclusion and poverty of people with a disability in an urban environment.

Accessibility is considered as a pre-condition for the independent survival and equal participation in society for a disabled person. There are some other facts and figures representing the need to consider the challenge of accessibility. More than 12 million people in UK have some kind of disability. It is almost 19% (1 in 5) of the total population. (Department of Health,2012). As the world's population is aging, it is estimated that by 2050, 20 % of the world's population (2 billion people) will be aged 60 or over. (UNDESA,2015). This will add to a rise in impairments and also to the challenge of accessibility in the built environment. 9 % of all adults (over the age of 16) in England report having a mobility difficulty. (The Office of National Statistics ,2011). Although, people with sensory impairments (such as hearing loss and blindness or with learning difficulties or mental health conditions) may be capable of functional walking, nevertheless, they may be prevented from walking outside due to lack of accessibility. (Living Streets,2016).

Traditionally, our built environment has been designed by keeping in mind the needs of an average healthy man. It was in the last half of the 20th century that the awareness for accessibility for the disabled steadily emerged. But these accessibility needs were generally concentrated on the needs of physically impaired people ignoring all the other types of impairments and disabilities. Environmental barriers were not the focus of the studies but only the disabilities of the people (Burton &Mitchel,2006). However, the manner in which cities are designed has for too long failed to consider the unique ways that physical and social barriers limit the participation of persons with disabilities in public life. The crucial question that needs to be answered is this: What are the types of barriers that disabled people face and how can we overcome these barriers in the designing of our cities? According to studies, these barriers fall into three distinct areas (physical, attitudinal and organisational) which discriminate against people with impairments and exclude them from involvement and participation in daily activities. Physical barriers include inaccessible footways and crossings, buildings and services. Barriers created through people's attitudes include discrimination, low expectation and prejudice – the combined 2009/10 and 2010/11 Crime Surveys for England and Wales suggest that around 65,000 disability hate crimes take place on average per year (DWP,2014). Organisational barriers are best exemplified through inflexible policies, practices and procedures – disabled people are most likely to mention modified hours or days or reduced work hours as an organisational adjustment that has or could help them into work (Coleman. et al., 2013). By developing and enforcing accessibility standards, new transportation systems, pedestrian pathways, and information systems could open unprecedented opportunities to realize social inclusion of persons who have difficulty seeing,

hearing, remembering, or moving around without assistance. Furthermore, non-discrimination policies protecting the rights of persons with disabilities are also needed to ensure the right to housing, and to combat exclusionary housing policies and prejudice that perpetuate inequality. many people will continue to be restricted or excluded from the outside world. There is a lack of published peer reviewed evidence relating to the disabling impact of the built environment on people living with a broad spectrum of physical, sensory, intellectual and behavioural condition

The concept of inclusive design has taken over the accessibility planning in recent decades. "Inclusive design means designing products, services, environments that as many people as possible can use, regardless of age and ability". (Burton and Mitchel,2006,). Inclusive design (also termed as Universal design) is not new rather adds a new attitude or approach to design. The "aging population" and "the desire to end exclusion of disabled in society" are two general trends responsible for the emergence of this approach.

The growing awareness of disability rights have resulted into anti- discrimination legislations across the world. The UK Disability Discrimination Act (1995, 2005) has greatly shifted the perception about designing for disabled. The attitude towards design has shifted from forcing people to fit and adopt the environment to the new solutions in design and technology for disabled. The built environment is seen as the catalyst for disability rather individual impairments as adopted by social model of disability.

Undoubtedly, the contribution of built environment towards more equal, inclusive and cohesive society cannot be denied but different people experience the same environment in different ways. Their experience depends upon their social, cultural and economic background as well as their physical condition. So, the diversity in user experience needed to be considered while designing an urban environment. The challenge for inclusive urban environment is to make all user groups including disabled comfortable and feel that the place belongs to them. Only a thoughtfully crafted and managed environment can reach the expectations of the majority of users.The question remains that "Is our urban environment accessible and inclusive enough for the disabled? According to a study by Thomas C. (2007), "several aspects of the built environment, public transport, and current levels of shopper activity continue to present a range of difficulties for wheelchair users, which restrict their physical mobility in the cities. A majority of wheelchair users (61%), for example, feel that they are hindered by the way in which places are planned or designed. While 80% find the purpose-built modern covered shopping center easy to negotiate, more peripheral shopping streets with vehicular traffic, and traditional market areas, are considered problematic by a third or more". (Bromley, Matthews, and Thomas, 2007).

Another aspect of inclusion in urban life is through technology. Smart city technology is not only a mean to improve existing infrastructure but also provides an unprecedented opportunity to improve the lives of all citizens including ageing communities and disabled people. These technologies can empower the excluded in achieving the quality of life in many aspects and can also help to remove the barriers for their inclusion in urban life. There is a gap in research in finding how accessible these technologies are for disabled and any barriers they face using these tools.The research intends to establish the best approach towards the inclusive urban spaces for the disabled (physically and sensory impaired) by the integration of design, policy and technology to achieve a barrier free environment for the independence, convenience and safety of the target group.

Objectives

To achieve the aim of this research, the following objectives are determined

1: To understand the conceptual basis of disability in a built environment and the emergence of accessibility planning and the concept of inclusive design.

2: To examine how planning policy has evolved at different spatial scales for accessibility and inclusive design and how this policy is implemented in the UK for the disabled in the urban spaces.
3: To identify the extent and type of barriers faced by the disabled for their integration and active participation in the urban world and the analysis of the implications of these barriers.
4: To explore further the design, policy and the technological approach for the creation of inclusive urban spaces (removal of the barriers) for the target group.

Methodology

The aim of the research suggests a qualitative approach towards the methodology. Different research methods will be adopted to achieve the outlined objectives.
Firstly, a literature review carried out to provide a sound academic foundation for the research. Different concepts of disabilities in urban planning and design was explored in accordance with the previous literature. Secondly**,** the review of planning policy was carried out to identify the possible challenges in the current legislative and design frameworks for accessibility in urban environments. The planning policy at international level will also be discussed to gain an insight of the approaches to tackle the issue of inaccessibility and exclusiveness for the people with disabilities. Finally, Focus group was conducted. Focus group is a flexible socially oriented research method for capturing real-life data in a social setting. (Crossman,2017). This approach was adopted for the identification and analysis of nature and the types of barriers for the target group in an urban environment for accessibility and inclusivity.

Target group

The research aims to investigate and gain a thorough perspective of those disabled individuals who can navigate independently in urban environments. The study was based on three types of disabilities with some in common but some conflicting needs in the society. It is important to know that by using different terms for the types of the disabilities, what is meant in this research. To explain this the target group is as follows.
1: The first focus group of physically impaired people was correspond to such individuals who have mobility difficulties due to non-functioning or absence of any lower limb. They were either using a wheelchair, mobility scooters or crutches. This type of disability covers a broad range of people including elderly population unable to walk and using mobility aids.
2: The second focus group of visually impaired or blind people were cover those disabled individuals who were either completely unable to see or with a serious visionary defect. All the participants were either using a white cane or the guide dogs to navigate through a public environment.
3: The focus group with deaf was represent those people with complete hearing loss and unable to communicate without sign language.

Questionnaire Development

A semi-structured questionnaire will be used in the focus groups based on the possible types of barriers identified in the literature review. In the questionnaire, all the aspects of the research including barriers to design, policy, and technology will be taken into account. As the research intends to gain the user perspective about the barriers, the focus would be on their daily experiences. The duration of the focus groups can be 1 hour to 1.5 hour depending upon the number of participant in each group.

Invitations to attend the focus groups

Preference will be given to arrange the focus groups with the members of existing organisations working for different disabilities. The identified organisations are Sensory Teams in Stoke-on-Trent and Manchester, Deaf Centre Manchester and DASS (the Disability Advisory and Support Service) , the University of Manchester. Some alternative backup will

tackle any poor response to the request for the interview. The location of the focus groups will be decided based on the convenience of the participants.

Findings and Analysis

All the focus group discussions will be recorded except for the deaf people. Their responses need to be translated via interpreters and will be noted manually. All the respondents will be coded with a number R1, R2, R3… with their age and gender and will be referenced in the findings by using the direct quotes. After analysing and categorising the findings under different broader themes or types of barriers, sub-headings will be used to elaborate and classify them. Each broader theme will be followed by a discussion of the findings, regarding their origin and possible response to the problem. After the findings and discussions, a comprehensive table will be formulated to summarise the findings and its implications. These findings will also be supported by some graphical illustrations in the form of sketches.

In this report, focus group methodology will be recapped and further elaborated in the findings and discussions chapter for the focus groups.

FOCUS GROUPS (FINDINGS AND DISCUSSION)

The study in focus groups aimed to investigate the target group to gain an insight into the nature and extent of barriers they face in an urban public environment. Another aspect of the research was to explore the degree of inclusiveness and independence they feel in public spaces due to the barriers encountered. The third dimension was to determine the role and barriers of technological accessibility in their lives.

FOCUS GROUPS COMPOSITION

The target group was comprised of three major categories

- Blind and partially sighted
- Wheelchair users/ People with limited walking abilities
- Deaf

Focus groups were arranged according to the type of disability. Participants already belonged to some organizations and a few residents with disabilities took part in three-different focus groups. The composition of focus groups was as follows

Table: 4.1: Composition of the Focus Groups

Focus Groups	Organisation	No. of participants	Code R= Respondents	Age-Range	Disability
F1	Sensory Team, Stoke-on-Trent city council	5	R1-R5	20-55	Blind/partially sighted
F2	Local residents, Stoke-on-Trent	7	R6-R12	25-70	Physical/mobility
F3	Deaf Centre, Manchester	8	R13-R20	20-65	Deaf

The focus group with the blind and partially sighted was held at their monthly meeting in Stoke-on-Trent. For the second focus group, an interview request was sent to all the student members at DASS (Disability advisory and Support Service), University of Manchester, but an inadequate response led to the arrangement of the focus group with some mobility impaired residents in Stoke-on-Trent. In the third focus group, at Manchester Deaf Centre, communication with the deaf participants was made possible with the help of an interpreter. Then the findings were re-instated by an interview with the project manager at the deaf

centre, Manchester. She also shared her views on the research questions and provided an insight into some barriers.

In focus groups, the topic was introduced engagingly by inviting them to share their daily life experiences and the whole journey environment they often encounter. The focus groups and interview were based on a semi-structured questionnaire and all the participants were given an equal chance to express themselves and share their experiences for the research areas. More questions were prompted where more details were required. As a result, there was an open discussion on all the desired aspects of the research.

FINDINGS AND DISCUSSION

After the focus groups, four clear themes for the types of barriers were identified to classify the findings. All the issues were based upon the social model of disability.

1: Physical barriers
2: Organizational barriers
3: Technological barriers
4: Attitudinal barriers

Each barrier was further classified into sub-headings where necessary for a particular issue together with the illustrative quotes. All the quotes were referenced by the code given to the respondent along with his age and gender.

(A). PHYSICAL BARRIERS [FINDINGS]

Physical barriers are directly linked to the inaccessibility in navigating an urban environment. These are the physical features which hinder the participation of the disabled in daily life activities. There were numerous physical barriers identified in the focus groups.

PAVEMENTS

- Condition and Design

The fear of tripping was very high amongst participants with mobility and visual impairments. The uneven surfaces were the primary concern while walking especially in high foot fall areas. Some participant described the condition of the pavement as the main reason of restraining them from navigating the urban spaces.

"It is risky going out alone... where the paths are not maintained"
(R7, Female 60)

The lack of colour contrast in the material used for the pavements was also mentioned as a huge barrier for the visually impaired people. The absence of tactile warnings and guide strips at most of the places added to the barriers along with the in-proper and constantly changing kerb heights. These features often act as the sensory clues for the visual impaired/blind but either absence or in-proper design had left them in most vulnerable situations.

"There should be some kind of continuous definition in the form of physical design for us to follow, but sometimes these features lead us to a more dangerous position" (R2, Male 45)

The absence of separate cycle lanes forces the cyclists to use either the road or the pavement. This was mentioned as a barrier for safety of both the blind/visually impaired and the deaf people. The narrow width of the pavements was also mentioned as a barrier for free movement in all the focus groups along with a non-consideration for a safe visual **"*signage distance*"** for deaf people.

- Street Furniture

Almost in all the focus groups seating places in an urban setting were considered as essential for comforting but the participants criticised their layout at many locations.

"As I come down from the bus station, there is a newly laid network of marble benches. I always find it hard to make my way between them. There are too many and are too big" (R1, Female 50)

For the deaf people, the benches in a row or square shaped were mentioned as a barrier obstructing their ***"conversation circle"*** and the required sight line for the signage.

The dining areas in front of the restaurants and cafes were also a major concern for the visually impaired and wheelchair users as these often obstruct their path. But even in properly designed and allocated public realm, the lack of accommodation for wheelchairs or mobility equipment was also mentioned as a barrier.

"There are very few places for dining which can accommodate me due to my wheelchair" (R12, Male 32)

The temporary physical obstructions such as advertisement boards, wheelie bins, parked cars on the footways were also discussed as the most common hazards faced by all focus groups.

"I avoid going out on Friday as there are bins all over the pavements" (R8, Male 60)

Similarly, the very low and in the middle of the path position of the sign boards were not detected by some visually impaired participants.

"All I sensed with my cane was a pipe, but as I moved forward my face banged into the board!" (R3, Female 55)

The bollards emerged as the most unpredictable physical barrier for visually impaired as these are often not in contrast with the background and can be found anywhere these days due to security reasons.

"I have encountered bollards even in front of the shops right in the middle of the entrances, all they want is to stop us from entering in there" (R2, Male 45)

CROSSINGS

Crossing a road emerged as the top hazard for most of the participants. There is a common practice of having a dropped kerb at one side of the road only. The absence or not an in-line location of the other end kerb was a big issue for wheelchair users and visually impaired. Similarly, the gradient of the dropped kerbs if too steep was pointed dangerously for wheelchair users especially in the rain or icy weather.

"I feel scared… as my wheelchair might go" (R9, Male 55)

At controlled crossings, the limited time available to cross the road created anxiety amongst the participants with mobility and visual impairments. Some visually impaired/blind people experienced the background noise of traffic as frightening. They preferred to cross it with a sighted person.

"I have to judge between all sorts of continuous noise that when it is safe to cross the road" (R1, female 50)

Many issues were raised in concerning the design of the crossings. For example, new puffin crossings allow more time to cross by detecting the pedestrians, but on bustling locations, a person in a wheelchair cannot see the red and green men indications at a lower level. It was a suggestion to use the audio signal as a "**must have**" feature for all the controlled crossings. The visually impaired people also preferred to use the crossings with an audio signal. For blind/and partially sighted people, the proper layout of the tactile surface is essential, especially at crossings. But some participants did mention very poorly laid tactile surfaces leading them towards another hazard. Manchester was mentioned as a good example in this regard

"I like Manchester; it's easy to move around in the city centre, I have even walked to the Piccadilly station on peak times without any problem. It is well thought with properly laid out crossings and surfaces" (R2, Male 45)

The deaf participants emerged to be confident users at controlled crossings. But an inappropriate driver's behaviours always possess a danger to them.

In response to the questions related to the shared spaces and pedestrian only urban environments, the physically disabled group showed a degree of satisfaction towards it.

"There are fewer obstacles in shared space; I feel safe!" (R10, Female 25)

However, the blind and partially sighted focus group required the particular design definitions for them to prevail, no matter the vehicles are there or not.

"I am more conscious in a shared space" (R5, Female 20)

4.3.[1.3]. OTHER PHYSICAL OBSTRUCTIONS

The absence of enough visual information for the deaf was discussed mostly in their focus group. As interpreted by the interpreter

"We are often the last ones to be aware of any danger like fire, ambulance or police cars unless we see them." (R15, Male 55)

The un-notified and frequent maintenance works on crossings, pavements or roads was also a big concern for navigating the area for a wheelchair user and extremely dangerous for visually impaired people.

"I feel unsafe to encounter construction works…. but these are so frequent, and sometimes I can't figure out after the works that what has been changed" (R4, Male 35)

Similarly, natural topography, level changes and poorly designed steps and ramps, the position of the tree lines and vegetation, all were mentioned as barriers in focus groups with mobility and visually impaired/blind.

ACCESSING THE BUILDING

The wheelchair users discussed that they couldn't access many buildings through the front door due to the absence of ramps or lifts. But the use of extensive glass on the front facade, without any clear definition for the entry was mentioned as a barrier by a partially sighted participant.

"It was glass all around, and people appreciated the building appearance, but for me, it was very confusing to find the door" (R5, Female 20)

(B). PHYSICAL BARRIER [DISCUSSION]

It is evident from the findings that all the focus groups have preferred well maintained, smooth, wide, and uncluttered pavements with properly laid tactile clues and street furniture. The problems identified by the participant as physical barriers referred to bad design and the organizational supervision. For example, the barriers while crossing the roads and maintenance of the paths are directly linked to the local highway authorities to fix the issues. It is essential to provide safe crossings, to allow more times to cross at busy junctions and to maintain the pavements, as all will add to the inclusivity of the urban places, especially for the disabled users. The other barriers like the absence of the kerbs, the improper tactile guidance, and the cluttered streets are related to the lack of design considerations and determine the obligation of local authorities to think about the accessibility standards. (Living street, 2016 b).

It is a matter of great concern that despite having a comprehensive legislative framework and approved accessibility standards, our local authorities are unable to provide barrier free environments for the disabled community in many parts of the country. Our legislative bodies are unable to compel these local councils to follow the current standards. The reason for the non-fulfilment was pointed out earlier in the planning policy review as NPPF does not set a

statuary obligation on local authorities to follow inclusive design principles formulated by Design Council or CABE. Similarly, the equity legislation does not imply automatically to the improvement of the existing facilities for disabled resulting in the barriers. (CEM,2010).
As a system of continuous, consistent and accurate signage or maps is required for a sighted person when navigating from place to place, a blind or visually impaired person also need a consistent and reliable tactile paving system for guidance and traveling into different areas and crossing the roads. The absence or wrong layout was pointed out as a significant barrier in the focus group restricting their safe and independent travel. The reason for this barrier as described by Johns (2015) is that the legal status of the tactile pavements as a road sign was ended in 1991 when they tried to extend the use of the surface from controlled crossings to all types of the crossings. Hence, it was difficult to upheld the status of the surface for a variety of uses. It used to be a compulsion before on every local authority to install the tactile pavement right every time. Another concern is to in incorporate these surfaces in historically protected areas. the provision of the surface in conservation areas should not be an issue as

"A patch of red, very pale after all, on the footway does not present a problem in this context, particularly if the cost is the safety of a visually impaired pedestrian". (Johns,2015).

Another factor adding to the barriers is that budgeting/funding for inclusive access features are often limited especially in small local authorities creating a divide regarding facilities for disabled in small towns and the metropolitan areas. The significant budget cuts recently have forced many authorities to prioritise the work of maintenance or new service provisions. Similarly, it is a general understanding that incorporating accessibility standards in urban environment involve high cost. To provide an inclusive design with the standard materials and individual solutions to different user groups within existing budget is impossible for many local authorities in UK. This is where research is lacking in finding cheaper alternatives accessible solutions without compromising the comfort and safety of the disabled users. However, recent plan of spending 9 percent of the funding formula on the maintenance and improvement of footways and cycle lanes from 2018/19 could bring great improvements in maintenance of the pavements. (Living Streets,2016). Additionally, in many cases, contractors are also responsible for using low specifications of the desired materials and on ground substitutions in designs if the required standard was difficult to achieve. This requires a continuous monitoring and consultation with the architects/planners for any needed change.
Furthermore, another significant cause of these physical barriers is that the creation of an accessible environment for one user group conflicts with the needs of the other impairments. For example, tarmac surfaces are durable and safe to walk for an able-bodied person but the lack of colour contrast will make it hard to notice for partially sighted. Similarly, blistery surfaces either guide or warn visually impaired people but can cause a trip or fall for a person who had a stroke or for children. A mutual understanding and compromise for the other users' needs are essential for an inclusive space. There is more need for research and interventions to balance the different requirements in one environment without creating barriers.
As described in the literature review, the concept of shared spaces with pedestrians' priority and pedestrian only environments are implemented as inclusive and safe designs in many urban public spaces. However, the focus group of blind and partially sighted expressed their dissatisfaction over this as the unpredictability of traffic, undefined surfaces and the absence of kerbs can reduce their confidence (Norgate,2012). Wheel chair users face fewer barriers in shared spaces due to no kerb restrictions, levelled surfaces and a freedom to use more space. However, different design solutions can be incorporated (texture, material difference, tactile guidance) for blinds/partially sighted to feel safe in shared spaces. The pedestrianizing of an environment does not completely serve the purpose of inclusiveness without accommodating

reasonable design standards. It is a common observation that loading-unloading vans, emergency vehicles, vans for the vendors in outdoor markets and mobility scooters are mostly present in pedestrianized only environments too, resulting in an unexpected barrier especially for the blind.

The use of bollards to stop the usual traffic in pedestrianized areas is also a big hazard as evident from the findings. The Guide Dogs UK had campaigned for priority of pedestrians to take precedence on designated footways in streets, shared spaces and over all other forms of the transport. This is a better approach and can be applied at any desired place without clear segregation of the traffic.

Although, deaf people appeared in the research facing the least barriers in the form of physically designed environment. But as indicated proper seating layout and large width of the pavement can encourage their participation and activities in the urban environment with the tool of signage distance. Lack of visual information can also be easily incorporated in design (flashing fire alarms, visual information in buses, trains and their stations) specifically at strategic locations. An issue not raised here, but prominent with younger people elsewhere is the importance of street lighting, for example, around concerns about accidents, personal safety and for deaf students the inability to sign to each other in the dark. (Living Streets,2016) This demonstrates a limitation to this research and emphasises the need for further work in this area. The physical barriers and issues of personal safety identified by the focus group participants are consistent to those addressed by standard design guidance, such as the Manual for Streets (2007), Guide Dog UK (2012) and the accessibility standards by the design council and CABE used by many councils. The design frameworks can be drawn keeping in view the types of barriers and inclusive design principles. Also, as stressed in the literature that our curriculum of planning and design should have the provision of the teaching about ethics, needs, and standards of planning/design for the disabled citizens so that professionals can be trained throughout their educational careers as well for better places.

Some physical barriers along with the standard design requirements and better responses are illustrated in the following figures (41,4.2,4.3). Overcoming the physical barriers and following design standards can contribute significantly to an inclusive environment.

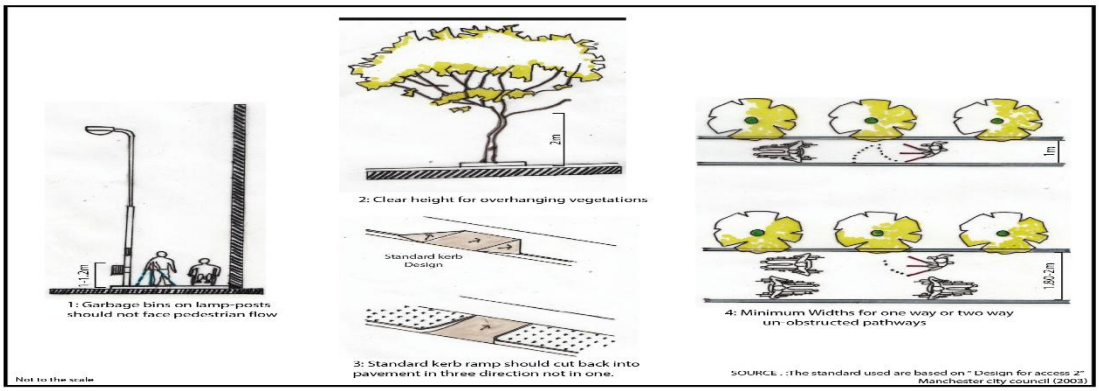

Figure 4.1: Accessibility standards in the Physical design 1

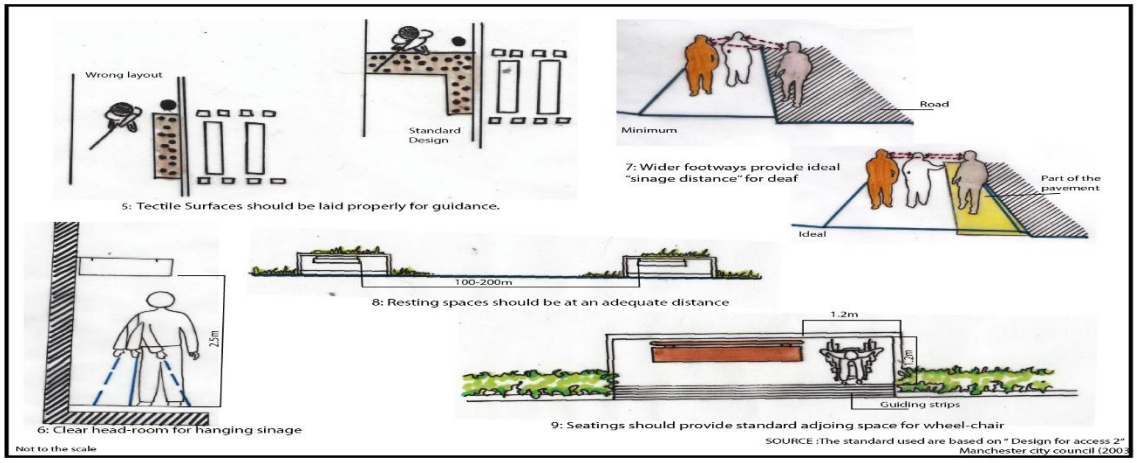

Figure 4.2: Accessibility standards in the Physical design 2

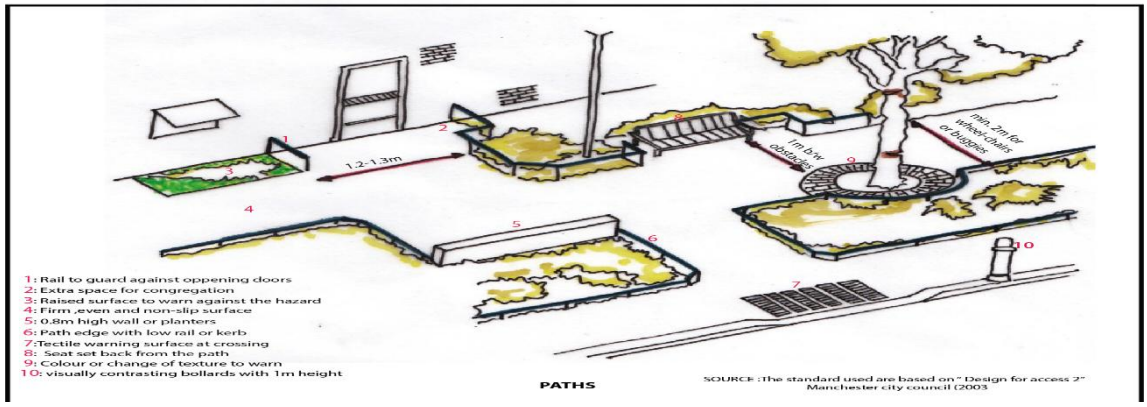

Figure 4.3: Accessibility standards in the Physical design 3

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(A). ORGANIZATIONAL BARRIERS [FINDINGS]

LACK OF SERVICES

- TRANSPORT

In the focus groups, public transport was agreed as an opportunity for longer journeys. The accessible transport should mean not only having this facility but also being fully informed about it with affordability. Although public bus services have improved in the views of the focus groups participants, a lack of enough wheel-chair spaces, stepping on and off the buses, an insufficient visual and hearing information and the behaviour of the driver were the common barriers for different participants. One blind member expressed

> ***"I am waiting for the talking buses to be in my city also, I have to be on my feet all the times to know about my station. What if the driver forgets about me!" (R4, Female 55)***

The train stations were described as well designed with fully contrasting tactile warnings for visually impaired, but the need of help for getting in and out of the trains for both visually and mobility impaired was discussed as a barrier.

The deaf people are unable to get any information announced concerning the arrival of the train or change of the platform, if not supported by a visual clue. This barrier was mentioned by the manager of deaf centre in the interview. There was also a point of lack of communication at the ticket office, with the bus drivers or in shops and restaurants for deaf also.

- OTHER SERVICES

The lack of accessible toilets in urban spaces was also discussed as a barrier. Sometimes, this facility is available but not accessible. In addition to the barriers, some mobility impaired participants when using their transport experienced frustration for not finding a disabled parking place. It was mentioned either due to less provision or misuse of this facility.

> ***"It happens quite often now, that I have to wait to park in the disabled bays" (R10, Male 62)***

The lack of accessible taxis and the drop off points also came under discussion as a barrier

LACK OF TRAINED STAFF

The deaf people are entitled to a limited hour of interpreters for jobs and education. "***One deaf student in a high school only gets one month of special support in a year"*** (described by Project Manager at the Deaf Centre Manchester)

The lack of staff who know the sign language was also mentioned by the interpreter describing an incident where ***"A deaf person was ordered by the police to handcuffed"*** but the police was unable to understand that the individual can't follow their instructions. It took them many hours to arrange an interpreter to communicate with him later at the police station. Such incidents stress the need of more staff with disability awareness and training.

LACK OF INVOLVEMENT IN DECISION MAKING

There was a discussion that in making policy decisions or designing the public spaces for them, their participation could produce a significantly better result. They agreed that mostly the poorly designed places are with the features confirming the "afterthoughts" about them.

> ***"We are a minority. The authorities never consider asking us" (R12, Male 45)***

(B). ORGANISATIONAL BARRIERS [DISCUSSION]

The findings have demonstrated that many barriers are associated with the organizational thinking. As in literature review, many authors have emphasized the insignificant thoughtfulness given to the needs of the disabled people in planning policies and the implementation of the existing policies. They argued that planning professionals have no idea about the actual needs of people with disabilities in the urban spaces. This implies to many barriers discussed in the focus groups. For example, the in-adequate accessible toilet provision and seating places can discourage disabled people to spend more time in public areas. The role of these organisations to overcome these barriers can also not be undermined. For example, civil enforcement officers can introduce and issue more penalties/fine to the cars parked on the kerbs or in disabled bays illegally.

The role of public transport in enabling longer journeys holds a key position. The barriers related to affordability, information, getting in and out and lack of enough accessible spaces in buses and train were identified by the focus groups. Trained staff, the design of the vehicles, assuring continuity in travel chain can address these issues. Edification and training of staff involved in transportation can genuinely make a difference. Until 2016, transport system was not entirely complying with the accessibility requirements as it needed time to upgrade its whole infrastructure. But buses and trains ordering new vehicles are already implementing amendments. (Mathews 2002 in CEM ,2010).

Lack of trained staff is directly linked to disability awareness and training programs. Deaf people as mentioned can avail only a limited hour of interpreters for their routine tasks (telephones, education or employment). This barrier not only limits their daily performance but also put a lot of pressure on the existing services for them. Another interesting fact was confirmed by the project manager at deaf centre Manchester that the sign language for deaf people is not universal. People of different regions sign in various ways. This can also be interpreted as a barrier for the trained staff or deaf individuals themselves to work and live at various locations. By teaching sign language at schools and making it an advantage to get a job can contribute significantly to overcome the shortage of help required by deaf people.

The involvement of disabled people in design and policy making can bring a significant shift towards better places and facilities for them. They are often incredible “self-advocates”. They can share their experiences how an absence of the accessible environment affects them. “As participants in planning the design and construction of new buildings and facilities, they can bring their experiences to bear to make projects as accessible and usable as possible” (CEM,2010). Hence, our organizational set-up mostly undermines this opportunity and is responsible for the failure in providing a barrier free environment for them.

(A). TECHNOLOGICAL BARRIERS [FINDINGS]

All focus groups agreed that technology has a major role in facilitating them. But affordability, skills for accessibility were the main barriers to technology. For blinds and partially sighted, some electronic applications in mobile phones were mentioned by the participants connecting them to someone via the internet. Then they are guided through their way avoiding barriers. Some of these applications were considered easy to use and free of cost but many require regular payments. But carrying your phone in a particular position and relying on their information was not acceptable for some participants.

“It feels like disabling our other senses too” (R5, Female 20)

They also mentioned that the software for training and education of blind people are costly. Many of them were not able to afford that.
For the hearing, impaired (not deaf but with how hearing ability), the hearing loop system in many offices and banks was described as serving the purpose. But deaf people appeared to use "sign videos", a digital application, to communicate with different services through an online interpreter. The training to use this software especially for older deaf participants and affordability was mentioned as a challenge.

For physical disabled, discussion regarding technology revolved around the innovations in medical engineering. At a younger age, the transplantation of new artificial limbs was discussed as a valuable option. But mostly they were relying on the mobility aids like scooters, wheelchairs and guiding navigating tools.

"My scooter is a blessing for me; I would have been in care without it" (R7, Male 70)

(B). TECHNOLOGICAL BARRIERS [DISCUSSION]

The role of information and technology in offering new opportunities for the persons with disabilities is significant especially in the form of assistive technologies. Their daily life is affected positively by technology to a higher extent than the general population. But the discussion about technology provided a limited insight about its roles and barriers for the study group. Although, it was acknowledged by the focus groups that technology provides them an opportunity for inclusiveness more than anything but there are barriers to its full access. The barriers discussed were mainly affordability, availability and training for the disable people in this regard.
Historically, the technology available to help people with disabilities has been as complicated as the types and degrees of disabilities themselves as discussed in literature. Whether the condition affected is physical, cognitive (more than one disability), hearing or vision, each circumstance had its own expensive gadgets and associated support structure. Now with the advent of the smartphone and tablet a new platform has emerged for the first time which stretches across the scope of all disabilities and also across mainstream services. Hence, we now have a robust entry point and new platform to influence the diversity of perspectives, knowledge, and needs of the disability community,a billion people worldwide,that will provide benefits for everyone.
Some barriers have also been mentioned in literature review regarding technology for disabled. For example, different technology markets have been developed in isolation with solutions for a specific area and very high cost (Bates,2017). Until now, there is no clear effort to unite different streams of technologies as disabilities themselves.
Online communities are not only enabling isolated disabled community to interact with others but also empowering them to over-come the barriers in face to face meetings. Experience using internet is different for different type of disabilities. The potential barriers in web accessibility are extensive for disabled but can be removed by introducing equal standards for implementation of web accessibility. Web material can be created according to various needs of people like deaf or blind. But the percentage of such sites as compared to the ordinary data sites is very low. As communication, education, employment, and community activities are shifting exclusively online, the unequal access will affect more negatively to the people with disabilities.
A number of Smart Cities are stepping up and making accessibility an inclusion a priority. Some examples for technological inclusions in different cities in the world will be discussed

in best practice case-studies in the next chapter. Beyond phones, other apps and crowdsourced Smart Cities services are making city life simpler. Smart Cities are working to make sidewalks and other shared spaces easier to navigate too. Designing with all citizens in mind, including the people with disabilities, ultimately makes services more accessible to everyone. And, by placing them in a common framework, Smart Cities services will be linkable and not isolated as in previous generations. Smartphones, tablets, and wearables are at the heart of this drive for an inclusive Smart Cities society. (Bates,2017)

(A). ATTITUDNAL BARRIERS [FINDINGS]

The discussion about the equal opportunities and attitudes of the ordinary people was distressing. Almost all participants had faced negative an unsupportive behaviour of individuals resulting in an unsafe environment for them.

> ***"Sometimes I think it's good that I am completely blind and cannot see their reactions, as my family has told me that they avoid me in a way as they can catch my disability" (R1, Female 50)***

Another participant with mobility impairment had experienced some incidents of theft and said he avoids shopping in an area where there is a possibility of having no cameras. Similarly, a deaf participant was interpreted as

> ***"I avoid going out at peak times as I know I won't get any help" (R18, Female 30)***

In the focus group with blind and partially sighted, a discussion started about the ***"patronised behaviour"*** of people who sometimes help them in crossing the roads or finding the way. But in their view *"**they do it as a good deed for a day" (R2, Male 45)*** but most of the times "***if they see me with a cane, it's their duty to bang into me" (R3, Female 55).***

One participant had left his job due to the unsupportive behaviour of the colleagues.

> ***"They used to ignore me for hours" (*R9, Male 50)**

In some incidents, lack of information had also placed disabled in a vulnerable situation. As mentioned by the manager of the deaf centre, at the time of the recent bomb blast in Manchester Arena, there were few deaf cleaners in the basement and they were the last ones to get informed and evacuated from the building. It was discussed in the focus groups that by continues facing the barriers and attitudes of the people, they feel less motivated to go out and face the world. The reason behind these types of behaviours was discussed as lack of awareness and time for an ordinary person.

(B). ATTITUDNAL BARRIERS [DISCUSSION]

"There is a growing body of evidence to indicate that disabled people are more likely than people who aren't disabled to experience the attitudes of others as a major barrier to education, leisure, transport, access to public services, social contact and accessibility outside the home". (Scope,2014). This was also expressed in the focus groups as well that the toughest challenge for them is that a large section of the society holds negative attitudes towards them. The general lack of awareness and understanding of their needs is responsible for this barrier. Even after physical barriers have been removed, the negative attitudes can produce barriers in all domains.

Some recent studies put a light on this issue in more quantitative manner. For example, a research by OPM and Ipsos MORI (2014), "nearly a four in ten (38%) ordinary people surveyed think of disabled people as less productive than non-disabled people, over three

quarters (76%) think of disabled people as needing to be cared for, and 13% think of disabled people as getting in the way some or most of the time. (Scope ,2014). Similarly, among those who reported the attitudes or behaviour of other people as a particular barrier, the main problem was identified as being with employers (76%), followed by colleagues (51%) and then the general public (26%)". (OPM,2014)

A lot needs to be done to overcome the attitudinal barriers, including "better education; ensuring there are more opportunities for disabled people and people who aren't disabled to have positive interactions; and encouraging more positive portrayals of disability and disabled people in the media". (SCOPE,2014). To overcome the ignorance and biasness around disability, edification, and awareness is essential. In the focus groups, a suggestion about disability awareness in schools came under-discussion. It was suggested that for the deaf people, teaching the sign language in schools can be more useful than any other foreign language.

Awareness and education about disability rights and importance of accessibility should be provided to the policy-makers and the staff working on behalf of the disabled community. This education should be a regular component of professional training in architecture, construction, design, informatics, and marketing as suggested in the literature earlier. There should be no compromise in the forceful implementation of the disability discrimination acts in every sector of the society.
As described in the literature review, due to the barriers for the participation in the urban life of current time results in the stigmatization and the social oppression of the disabled community. So, better design and facilities can add to the self-motivation to participate in urban activities in disable people.
A summary of the results and discussion is presented in the following table to conclude the types and nature of barriers faced by the target group for the disability inclusion in the society. Some standards used in the table for the physical design are based on (Manchester city council,2003).

CONCLUSION AND LIMITATIONS

The focus group study aimed was to investigate the type and nature of the barrier in accessibility for different types of disabled people, hindering their participation in society and achieving inclusive environments. The research demonstrates four clear categories of barriers faced by the study group related to their daily experiences. These barriers are interrelated in terms of their origin in many cases. But most of these are either related to poor physical designs, inadequate organizational or policy considerations, negative attitudes and stigmatization of disabled or technological deprivations. Although the generalization of the results is a limitation due to a small sample size and a particular location for the two focus groups, however, these findings do reinforce all the previous research but with a more focused user's perspective lacking previously. Furthermore, in literature, we hardly find the deaf individuals being a part of research to investigate the barriers for them with a general belief that they are quite safe users of the public environments. However, this study has shown to identify some barriers for the deaf including the physical obstructions. It is worth noticing in table 4.2 that although facing the physical or organisational barriers related to design and management have a varied pattern for different disabilities but regarding the barriers of the attitudes and technology, all are at the same page. And in many cases, these barriers dominate psychologically to stop them in participating in the social life. Hence,

disability inclusion should not be understood as the search for equal 'universal solutions', but the search for better life and equality taking into account the variety of social and economic contexts. Extraordinary measures, such as laws and even technical solutions have to be defined accordingly, adjusting to specific and perhaps contrasting needs in each case.

References

Barness, c. (2011). Disability and the importance of Design for All. [Online] Available at: https://www.jacces.org/index.php/jacces/article/view/81.

Basha, R. (2015). "Persons with Disability and Public Space – Case Studies of Prishtina and Prizren", poster presentation at The 2nd International Conference with Exhibition S.ARCH: Environment and Architecture, Budva, Montenegro.

Bates, D. (2017). Disability: An Upside for Everyone in Unifying Smart City Design. [online] Austin Startups. [Online] Available at: https://austinstartups.com/disability-an-upside-for-everyone-in-unifying-smart-city-design-7fd2b6ab477 [Accessed 14 Aug. 2017].

Bromley, R.D.F., Matthews, D.L. and Thomas, C.J. (2007). "City center accessibility for wheelchair users: The consumer perspective and the planning implications".

BSR. (2017). "Smart Cities for All: A Vision for an Inclusive, Accessible Urban Future". [online] Smartcities4all.org. [Online] Available at: http://smartcities4all.org/att-pdf.php [Accessed 21 Aug. 2017].

Burns, K., & Gordon, G. (2010). "Analyzing the impact of disability legislation in Canada and the United States". Journal of Disabiility Policy Studies, 20(4), pp. 205-218.

Burton, E. and Mitchell, L. (2006). "Inclusive urban design: Streets for life." Elsevier.

CABE. (2008). "Inclusion by Design – Equality, Diversity and Built Environment". [Online] Available at:
http://www.designcouncil.org.uk/sites/default/files/asset/document/inclusion-by-design.pdf.

Calkins, M., Sanford, J., & Proffitt, M. (2001). Design for dementia and lessons for universal design. In W. Preiser & E. Ostroff (Eds.), *Universal design handbook* (pp. 22.1– 22.24). New York, NY: McGraw-Hill.

CEM, the college of Estate management. (2010). "ACCESS, SUSTAINABILITY AND ENVIRONMENT "CEM occasional paper series.

Center for Universal Design. (1995). "Principles of Universal Design", Center for Universal Design, North Carolina State University.

Coleman, N., Sykes, W., Groom, C. (2013). "Barriers to employment and unfair treatment at work: a quantitative analysis of disabled people's experiences", Equality and Human Rights Commission Research report 88. [Online] Available at:
http://www.equalityhumanrights.com/sites/default/files/documents/barriers_and_unfair_treatment_final.pdf.

Crossman A. (2017). "how to use focus groups in research". [Online] Available at:
https://www.thoughtco.com/use-focus-groups-in-research-3026533.

Department for Communities and Local Government. (2012). National Planning Policy Framework. [Online] Available at:
https://www.gov.uk/government/publications/national-planning-policy-framework--2 [Access March 2012].

Department for Communities and Local Government. (2015). Part M 'Access to and Use of Buildings', M1. [Online] Available at: https://www.planningportal.co.uk/info/200135/approved_documents/80/part_m_-_access_to_and_use_of_buildings

Department for Transport. (2011). "Shared Space: Local Transport" Note 1/11. [Online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3873/ltn-1-11.pdf

Department of Health. (2012). "Long-term conditions compendium of Information" 3rd edition. [Online] Available at:
https://www.gov.uk/government/publications/long-term-conditions-compendium-of-information-third-edition .

Evans, G. (2009). "Accessibility, Urban Design and the Whole Journey Environment, BUILT ENVIRONMENT", 35.

Fletcher. (2002). Universal Design, Human-Centered Design for the 21st Century, In: Design, Taiwan.

Gehl Architects. (2017). *Pedestrianization of New Road in Brighton* – Gehl. [online] Available at: http://gehlpeople.com/cases/new-road-brighton-uk/ [Accessed 1 Aug. 2017].

Gleeson, B. (2001). "Disability and The Open City". Urban Studies, 38(2), 251-265.

Gleeson, B. (2001). "Disability and the open city". Urban Studies, 32(2), pp. 251-265

Golledge, R. (1993). "Geography and the disabled: a survey with special reference to vision impaired and blind populations". Transactions of the Institute of British Geographers, 18(1), pp. 63-85. Golledge.

Handy, S., Boarnet, M., Ewig, R., & Killoingsworth, R. (2002). "How the built environment affects physical activity: views from urban planning". American Journal of Preventative Medicine, 23(2), pp. 64- 73.

Hanson, J. (2011). "The Inclusive City: delivering a more accessible urban environment through inclusive design". University College London.

Harris, J. (2010). "The use, role and application of advanced technology in the lives of disabled people in the UK". [Online] Available at:
http://www.tandfonline.com/doi/abs/10.1080/09687591003755815

Imrie, R. (1996). "Equality, social justice and planning for access and disabled people: A comparative analysis". *International Planning Studies, 1,* 17–34.

Imrie, R., Hall, P. (2001). "Inclusive Design: Designing and Developing Accessible Environments". New York: Spon Press.

Imrie, R., Hall, P. (2003). *Inclusive design: designing and developing accessible environments*. Taylor & Francis.

Imrie, R. (2000). "Responding to the design needs of disabled people", *Journal of Urban Design*.

Imrie, R. (1999). "The Role of Access Groups in Facilitating Accessible Environments for Disabled People". Disability and Society, 14(4), 463-482.

Landscape Institute. (2016*). New Road, Brighton | Case studies* | Landscape Institute. [online] Available at: https://www.landscapeinstitute.org/case-studies/new_road_brighton/ [Accessed 1 Aug. 2017].

Lazar, J. and Jaeger, P. (2011). *Reducing Barriers to Online Access for People with Disabilities | Issues in Science and Technology*. [online] Issues.org. Available at: http://issues.org/27-2/lazar/ [Accessed 14 Aug. 2017].

Lewis, J. (2011). "Student attitudes towards impairment: an assessment of passive and active learning methods in urban planning education. Teaching in Higher Education", 16(2), pp. 237-249.

Living Streets. (2016) a. "Making the case for investment in the walking Environment". A review of the Evidence.

Living Streets. (2016) b. "*Overcoming barriers and identifying opportunities for everyday walking for disabled people". Identifying* opportunities for everyday walking for disabled.

Mace, R. L., Hardie, G. J., & Place, J. P. (1990). "Accessible environments: Toward universal design". In W. Preiser, J. Visher, & E. White (Eds.), *Design interventions: Toward a more human architecture*. New York, NY: Van Nostrand Reinhold.