



Access to Higher Education for the Disabled Student: A building survey at the University of Liverpool

GILL CHARD & RAE COUCH

To cite this article: GILL CHARD & RAE COUCH (1998) Access to Higher Education for the Disabled Student: A building survey at the University of Liverpool, *Disability & Society*, 13:4, 603-623, DOI: [10.1080/09687599826632](https://doi.org/10.1080/09687599826632)

To link to this article: <https://doi.org/10.1080/09687599826632>



Published online: 01 Jul 2010.



Submit your article to this journal [↗](#)



Article views: 854



View related articles [↗](#)



Citing articles: 4 View citing articles [↗](#)



Access to Higher Education for the Disabled Student: a building survey at the University of Liverpool

GILL CHARD¹ & RAE COUCH²

¹Department of Occupational Therapy, University College of St Martin, Lancaster LA1 3JD, and ²Department of Occupational Therapy, University of Liverpool, UK

ABSTRACT *The problems associated with disabled students gaining access to higher education are complex and can be complicated further by difficulties encountered in the built environment of universities themselves. A survey of the built environment at the University of Liverpool was carried out using a group of occupational therapy undergraduate students. Students were able to learn about access audits and understand more fully the problems associated with access as part of their own studies. Results were recorded using a computer database, which enabled dissemination of information via the university's managed PC network and Home pages on the internet. Discussion and debate centre on the dilemma between a freely accessible environment for all students and the constraints imposed by the present day built environment and economic climate. The need for effective strategies in collaboration with disabled students is also considered.*

Introduction

In Britain almost 1.7 million students are enrolled on higher education courses. Of these 3.4% report that they have a disability (HESA, 1997). The most significant disability grouping is *unseen disability* (diabetes, epilepsy, asthma) which accounts for 45% of all reported disability, followed by dyslexia which accounts for 19%. Further breakdowns by HESA show that 1% are blind or partially sighted, 2% are deaf or have a hearing impairment and 2% are wheelchair users or have a mobility impairment. The University of Liverpool has approximately 14,000 registered students, of which about 300 have known disabilities. Of these dyslexia accounts for about 67% and a further 30% have other unseen disabilities (Jones, 1995, personal communication). Of the remaining 3% of students with reported disabilities 1% (three students) are wheelchair users and the remaining 2% have a visual or hearing impairment.

Access to both undergraduate and postgraduate courses for disabled students

used to be restricted because of the limitations imposed by access to campus buildings. While many problems still exist, many universities are now involved in a variety of projects concerned with special needs, ranging from improving building accessibility (Skill, 1992, 1994), developing computer software, provision of adapted computer hardware and heightening awareness of the problems that disabled students have in gaining their qualifications. Since the passing of the Disability Discrimination Act (1995), higher education institutions (i.e. those funded by the higher education funding council in England—HEFCE) are required to publish a statement of information about the facilities they provide for disabled people. The ultimate aim is an attempt to end discrimination faced by disabled people because, for example, of physical or environmental barriers. Larger institutions have anticipated this change including many universities. This paper focuses on a building access survey carried out by undergraduate occupational therapy students to identify facilities available for disabled students.

University of Liverpool

The University of Liverpool was founded in 1881. It was the first *red brick* building, built in 1892 which gave rise to the English saying of 'red brick colleges' later adopted by other universities. The university today comprises some 90 buildings, situated close to the city centre and covers 20.2 ha, much of which was developed in the 1960s and 1970s. There is a wide mixture of building architecture some of which has been upgraded to meet current legislation. Some of the original buildings have been modernised and/or changed for a variety of different purposes to meet the current demands of university education. For example, the School of Health Sciences was established within the university in 1992 in buildings that had previously accommodated physiology and veterinary science, and date from *c.* 1897. The old building has maintained many of its original exterior features, but has been up-dated and provides modern, accessible tutorial and seminar rooms, workshops and laboratories. The university's current policy is not to create any new buildings, but to restructure existing buildings. Making old buildings accessible to all and preserving their heritage can be a difficult and costly task. There does not appear to be a correlation between age of a building and problems with access for disabled people. Some of the original, but modernised buildings have excellent access and design, other buildings, constructed in recent years have considerable access problems.

A survey of access for disabled students was first carried out in 1987 and a wheelchair access route was added to the university map. In the 10 years following, building refurbishment and modernisation, changes to the university's corporate identity and consequent up grading of signage has resulted in information which is out of date. The map published by the university in 1995 does not show the wheelchair route at all, yet there is wheelchair access across the whole campus. The reason the wheelchair route was omitted from the new style map is unclear. Discussion at the time focused on equal access issues, and that disabled students should not need special information about the campus, but should be able to

circulate in the same way as all students. However, some buildings still do have problems with access and signage is still being upgraded, most disabled students and visitors find the wheelchair route an essential piece of information.

Information about access and the content and quality of signage is important when one considers the change in university education from traditional learning to modular learning which enables students to take diverse study pathways to achieve single subject or combined degrees. This requires students to have mobility and access to a wide variety of buildings for their studies across the whole campus, rather than restricted access to one or two departments. While this flexibility is advantageous for some, it has created problems for students choosing study modules taught in a variety of buildings across the campus, some with difficult access for disabled people.

Access Audit at the University of Liverpool

In 1995 the student welfare subcommittee in discussion with disabled students decided to carry out an access audit. Its remit was to ensure that facilities for disabled students were incorporated into any major building alterations, enabling access for all. This committee comprised two occupational therapists, the student welfare officer, safety officer, building services representative and the chairperson of the parent committee (Disabled Users Access Group, which includes students with disabilities). A complete survey of the existing university buildings in relation to access for disabled students was planned. The aims were to provide information about access to the university for students and potential students; to raise awareness of inclusive design; and to formulate a strategy with building services for prioritising future work regarding access within the university's built environment. The authors, both occupational therapists, were asked to design and organise the access survey. The enormity of the task to be undertaken and the availability (or the lack of availability) of people able to carry out the survey caused an initial problem. Occupational therapy students study accessible environments and building adaptations for disabled people as part of their undergraduate studies. This project provided an opportunity for students to put theory into practice in a real life situation, and potentially solved the authors' 'manpower' difficulty. Occupational therapy students were invited to volunteer to assist in the project. The authors needed to design and plan how to carry out the access survey. Three areas needed further exploration—first, the need to involve disabled students in the project, secondly to consider the concept of inclusive design for all and not just add-on adaptations for disabled people, and thirdly designing and carrying out the audit itself.

Social Model of Disability

There is much written in the literature on disability awareness that supports the view that disabled people should not just be consulted, but be actively involved in planning, creating or changing all aspects of our society. Researchers or those involved with planning change are usually able bodied people working from a

medical model background and not a social model. According to Hales (1996) the idea that disability is socially defined is not new. He suggests that knowledge of *disability* (not the person, but the condition) is limited for most people to the occasional sight of a wheelchair or blind person's white cane. The hardware or equipment is society's idea of *fixing* things for disabled people. For most individuals, society providing help or support does not include *us*. We leave that to experts—the nurses, social workers or therapists. This approach fits what Hales calls a *feudal society*, one in which a small ruling caste make decisions concerning the rest of that society. The power, of course, resides with this small ruling minority who decide, and perpetuate, what is good for that society. An alternative, he suggests, is a democratic society, where a small group exercise limited executive function determined by the will of the majority.

Oliver (1990) asserts that a social theory of disability must be located within the experiences of disabled people themselves. Issues of causation are central to his arguments, principally the personal tragedy theory, where a disability is seen as a tragedy and disabled people are seen as victims of that tragedy. Limitations are seen in terms of the impairments, or the personal inadequacies caused by, for example, the loss of a limb, being deaf, partially sighted, etc. The difficulties that disabled people face are caused more by society's attitude to their impairment than the impairment itself. The medical model view of disability explains the disadvantages experienced by disabled people as direct consequences of their own physical and functional limitations, whereas the social model emphasises the role of society excluding and disabling individuals (Gooding, 1995). The medical model focuses on individual impairments and only seeks a cure. It ignores the fact that disability experience is socially produced or erected by the disabling society in which we live. Rioux (1994) points out that for the first 80 years of this century the policy and research agenda in disability was driven first by biomedical concerns and second by service delivery models. Research methodologies and funding continues to be directed by medical model theory rather than social model theory. She asserts that a body of research is emerging that challenges the assumption that disability research can take place without involving disabled people themselves.

Finkelstein & Stuart (1996) assert that people with physical and mental impairments can have satisfying lifestyles as disabled people if the focus of attention is shifted towards removing disabling barriers rather than concentrating only on the rehabilitation of them as disabled individuals. Their philosophical concept is of a society without social and personal disabling barriers (not just for disabled people, but for everyone). Disabled people would have equal citizenship, housing, education, transport, employment, health and welfare services, all of which would be planned, organised and run in consultation with all sectors of society including disabled people. The social model of disability would inform practice. Finkelstein and Stuart go on to say that services run under a social model would enable disabled people to have control over decisions affecting their lives and that services would support this. They stress that a dynamic relationship should exist between able-bodied and disabled people, the needs of both are recognised and integrated into everyday society. They further point out

when ramps, British Sign Language and bleeping zebra crossings, for example, are common place and disabled people have a direct impact on the structures of society, then able-bodied people will find their lifestyle influenced by disabled people in the same way that disabled people presently find their lives being shaped by non disabled people. (p. 172)

Finkelstein and Stuart go on to say that services for disabled people are currently framed by a *disabling culture* which assumes that certain negative social consequences are bound to arise out of the possession of an impairment, or that disability will continue to be perceived as a problem carried within the individual and as such will continue to reside outside the political sphere.

It was philosophy such as this that inspired those involved with the design and setting up of the access survey.

Inclusive design

Over the past 20 years there has been an emerging awareness that good design of products, interiors or even buildings themselves should be *inclusive*. Inclusive design includes design features that will benefit as many people within our society as possible and means understanding the design needs of a wide cross section of society—wheelchair users, those with visual or hearing impairments, those with learning difficulties and so on. The cost of inclusive design features is often small, especially when incorporated into new buildings, yet recently disability rights groups have clearly demonstrated that it will not happen without legislation. According to the Joint Mobility Unit (1993) inclusive design not only enhances the quality of life for everyone who uses the built environment, but it also says something about the cultural values of organisations displaying it. Hinde (1995) reminds us that *designing for the disabled* really means *designing for people*, and that design is only a process with an outcome anyway.

Access to many of the large institutions within our society—education, law and employment is a major barrier for disabled people. Pointon (1992) suggests that these barriers can interfere or prevent disabled people from exercising their civil rights, gaining an equal education or securing employment. It would appear then, that access to these large institutions and, consequently, access to education, employment and informing oneself of one's civil rights are inextricably linked. Without access to education it becomes more difficult to gain employment, lack of employment increases one's dependence on the state. Dependence, and especially financial dependence makes exercising one's civil rights and responsibilities very difficult. Increasingly, many individuals and disability rights organisations are saying that this exclusion of disabled people is unacceptable.

Designing an Access Audit

According to Thorpe (1995) adapting the environment to the needs of disabled people should be a process that combines legislation, persuasion, good example and

human pressure. Thorpe argues that it is necessary to have an access strategy, but it can only be drawn up on the basis of thorough access audits, and may include the removal of physical barriers as well as other planned improvements. There is general acceptance that the built environment does handicap people—older, frail people, those with a visual impairment, parents with prams and pushchairs, as well as disabled people. It denies them independent access to a range of services and facilities. Inclusive designs aim to enhance and improve environments for all, not just people who are wheelchair users. The built environment can be extremely important in promoting access and choice. According to Walker (1995) it can help provide the physical connection to repair the split society of able-bodied and disabled people, interdependence one with the other is a necessity where design and disability are concerned. Walker criticises what he call the *special needs industry* which has re-enforced the idea that disabled people require different needs and even charity of the general public, as if they were not part of it. He further asserts that disabled people need confidence in those who create the environment and that at present disabled people do not have that confidence.

The Importance of Building Regulations in Non-domestic Buildings

In England and Wales refurbishment and major adaptations to existing buildings is governed by the Building Regulations. A requirement for access was first introduced in 1985, and in 1991 Part M required, for the first time, access for disabled people to all floors of non-domestic buildings and the provision of facilities such as accessible toilets (HMSO, 1991). It also extended the definitions of impairment to cover hearing and sight as well as mobility. This provides a good example of legislation promoting inclusive design, not only for new buildings, but for existing buildings too. Unfortunately, it still does not include domestic buildings, that is, people's homes. Part B of the Building Regulations covers fire safety. The design of a building alone cannot ensure safety for disabled occupants in the case of fire. It requires that means of escape strategies must be devised by the building's management in order to ensure safe, swift and orderly evacuation. Escape strategies for disabled users differ from those of able-bodied users according to the amount of assistance required. Horizontal and vertical escape routes must be considered, including refuge spaces at stair wells. These escape strategies are often referred to as PEEPS (Personal Emergency Egress Plans), and are regularly implemented and reviewed when a disabled student enters the University at Liverpool.

The employment of Access Officers by local authorities, who monitor minimum standards of accessibility to public buildings and act as a local resource for information about the built environment provides a focus for improving the built environment for all. However, as Walker (1995) points out the access officer is *for the disabled* re-enforcing the concept that access is different and not yet part of our everyday culture. Although these regulations have improved access for everyone, including disabled people, Walker (1995) asserts that it still re-enforces the idea that people with disabilities have special needs and demands, promoting the concept of separation rather than integration. Disabled people do not have all the answers

either, advice needs to come from a balanced group. Architects, access officers and others need to work together with disabled people towards inclusive environments.

Planning an Access Audit

The Center for Accessible Environments publishes information on how individuals can carry out access audits and stresses attention to detail, meticulous observation and recording skills as being essential (Fearn, 1993). Palfreyman & Thorpe (1994) consider a range of areas when carrying out an access audit. These include the external environment—car parking, dropped kerbs, signs and street furniture; access and entrances to buildings including ramps, doors and door furniture, thresholds and floor surface materials; horizontal circulation or corridors including widths of doors, obstacles, signs and colour contrasts; vertical circulation or lifts; and adapted toilets—type, transfer space, rails and equipment, wash hand basin and accessories. This is an excellent document for those who need a basic guide to get them started. Accessibility also includes transport, parking, set-down facilities, removal of physical barriers and clear signage. The Royal College Of Physician's (1992) report on disabled people using hospitals also recommended four key areas for attention: set down and parking areas, entrances, facilities (including toilets and lifts) and working environments (wards).

Skill (1994), National Bureau for Students with Disabilities, uses a different approach and support the principle of access audit as a staff development exercise. In addition to the core purpose of gathering key facts about an institution, they see a beneficial side-effect of staff development and raising awareness about disability issues. Using their standard questionnaires, academic departments within the institution and, for example, admissions, student services, assessment and examinations, provide standard information about their services offered to disabled students. Involving departmental staff in an access survey encourages a collective responsibility. However, the disadvantage of asking staff with little or no knowledge of disability about physical access to 'teaching rooms/lecture halls/seminar rooms' can cause other difficulties. Inaccurate information and a misleading picture can be one such difficulty.

The Access Audit

Information from the literature and discussion with disabled students resulted in the production of three access audit tools (External Environment, Internal Environment and Teaching Areas). Three disabled students contributed to the collection of relevant information: a student who is registered blind, a student with a severe upper limb impairment and a student who is a wheelchair user. Each was asked what difficulties they expected to encounter before they started at the university, what difficulties they actually encountered and what improvements were needed on the campus.

Responses were individual to each reflecting their differing needs, but common themes emerged. Difficulties expected were access to buildings, carrying books,

opening heavy doors. One admitted that she did not give it much thought and expected to cope. Actual difficulties encountered included access to buildings, heavy doors, difficulties with car parking, broken pavements, lifts and toilets not always being available for use and poor signage. One student also mentioned lack of awareness of others as a problem. Improvements centred on access to buildings, lighter doors, better signage and improved awareness of staff to disability issues. Students were also asked about the use of appropriate language when discussing disability issues. One student felt very strongly that it was important to be viewed in the same way as all other student, and that students should not be labelled by their type of disability. There was general agreement that *disabled student* was the most acceptable term.

Discussion by the subcommittee of how information about access to the university could be disseminated to a wider audience and particularly visitors and potential disabled students, resulted in the proposal to publish the outcome on the Internet, via the university's Home pages and the in-house managed PC network. A member of the university's computing studies department offered to establish a data base using Microsoft Access. The results would be entered direct from the audit sheets, and would be displayed as visual maps, floor plans and text highlighting freely accessible areas of the university and alternative routes for wheelchair users. The establishment of this data base necessitated some minor modifications of the wording and layout of the audit tools (Figs 1–3).

An application was made to the university to employ students over the summer vacation and a grant of £2500 from the University's central fund was approved. Six occupational therapy students who had volunteered to take part in the survey were interviewed and appointed. Initially, the intention had been for occupational therapy students to work in pairs with a disabled student. The grant was approved and available at very short notice; unfortunately, no disabled students were available to take part in the survey over the summer vacation.

Prior to carrying out the survey, two of the students spent a day piloting the access audit tools and some alterations were made to the layout of the forms. Questions were reworded so that those with a positive (yes) answer indicated an accessible feature, those questions with a negative (no) answer indicated a problem. Additional space was made for comments regarding the type and severity of the problem. The need for students to write an accurate and concise summary of each section surveyed was highlighted when they entered the piloted information into the computer database. At this stage, all six students were briefed about the purpose of the task, organisational details, how to collect the data and how to use the access audit tools. The students also participated in a short training course, run by computing services, on how to input data using Microsoft Access, and how to enter the data effectively from the access audit tools (Figs 1–3).

Heads of departments and building supervisors were informed in advance of the students visits to their department/building and all students were issued with identification. Students worked in pairs, each pair being equipped with a map of the university campus, tape measure, clipboard and pencil, a standard issue self propelling wheelchair and a list of buildings to be surveyed. All the university buildings

OUTSIDE

University of Liverpool
Disabled Users Access Group

Access survey of		Building Dept	Please complete question 3 for each entrance - use a separate sheet if necessary	
Start time	End time		Yes / No	
1. Nearest disabled parking space (distance in yards/metres)				
2. Has the pavement a dropped kerb near this parking space?		Yes / No		
3. Location of entrance				
Comments:				
4. Access to the main entrance to the building				
How many steps are there?				
Height from pavement to level of top step				
Opening width of door (in inches)				
Type of door (please tick)				
<input type="checkbox"/> self closing (heavy) <input type="checkbox"/> self closing (light) <input type="checkbox"/> swipe card <input type="checkbox"/> intercom <input type="checkbox"/> height of intercom from ground				
Comments:				
5. Is the main entrance accessible from the wheelchair route on the Precinct Plan?				
Yes / No / Don't know				
if No, could it be added?				
Comments:				
6. Is the disabled route signposted?				
Are the signs suitable for people with a visual impairment?				
Yes / No / Don't know				
Comments:				
7. Access to the libraries from this building				
Comments:				
8. Access to the Student Services Centre				
Comments:				
9. Conclusion				
Name				
Date completed				

FIG. 1. Access audit tool: external environment.

University of Liverpool Disabled Users Access Group			INSIDE		Lift	
Access survey of	Building	Dept	Floor	Start time	End time	Is this floor accessible from a lift? Is every room accessible from a lift without negotiating steps / stairs? If No, state which rooms below. Is the lavatory accessible from a lift? Are the dimensions of the lift enough to take a standard wheelchair? (30" wide x 48" deep / 750mm x 1200mm) Is control button panel (inc alarm) a maximum of 60" / 1500mm from floor Is there level access to a fire exit?
Please complete a separate sheet for EACH FLOOR						
1. Doors	Have all doors a minimum opening width of 30" / 750mm If No, what is the minimum opening width? (and list below)					Yes / No
Comments:						
2. Corridors	Are all corridors at least 48" / 1200mm at the narrowest point? If No, what is the narrowest measurement (state where below) Are corridors free of obstructions that reduce width? (Cupboards, fire extinguishers, radiators) Are corridors free of changes of level/steps on this floor? If No, please list problem areas below					Yes / No Yes / No Yes / No
Comments:						
3. Lavatories	Is there a disabled WC on this floor? Is it accessible using a wheelchair? Is there room to transfer from a wheelchair?					Yes / No Yes / No Yes / No
Comments:						
Conclusion:						
Comments:						
Name: _____ Date completed: _____						

were identified by a number and graded in priority order. The list was divided into three geographical areas with a pair of students assigned to each. The survey took place over a 3-week period, resulting in approximately 60% of the buildings being surveyed. A further grant was made available during the summer vacation of 1996 when further students were recruited (including a student with a disability) and the survey was completed.

The Results

Raw data collected by students was transferred by them, directly onto the newly-created database. Information was organised by building, so that Internet users access information by university building first, secondly external access (including entrances, location of parking spaces and dropped kerbs), thirdly by information on doors, toilets, corridors and lifts (horizontal and vertical circulation), and finally individual tutorial rooms and lecture theatres in that building. Figures 4 and 5 give information about external access, dropped kerbs and parking; Figures 6 and 7 give information about doors, toilets, corridors and lifts; and Figures 8 and 9 give information about individual lecture theatres and laboratories.

The results of the entire survey can be found via the Internet Address: <http://www.liv.ac.uk/cgi-bin/dsap.whichbuilding.pl>. To date only text highlighting freely accessible areas of the university is available, displays of visual maps, floor plans and alternative routes for wheelchair users at the time of going to press have not yet been created on the Internet site.

Discussion

Initially, the philosophical base of this research was to operate on what Hales (1996) referred to as a *democratic approach*. The small group having the limited executive function was the Disabled Users Access Group. Occupational therapy students would work in pairs with disabled students, and, in consultation with representatives from the Department of Architecture, Computing Science and building services, would all co-operating on different aspects of this project. In practice, funding was obtained from the university to pay students to carry out an access audit during the summer vacation. In the event, only one of the disabled students (who was not a wheelchair user) was available at this time. Although this was disappointing for all of those involved in the project, it highlighted the difficulties of co-ordinating a project involving a high level of commitments by a few people during a specific period. The subcommittee decided to go ahead with the project as funding was immediately available and any delay may have jeopardised this. The needs of students with wheelchair/mobility and visual impairments had been consulted. At the time of the study, there had not been a hearing impaired person involved in planning the access survey and this was acknowledged as a limitation. This highlights how easy it is in practice to slip from one model to another. There is a very subtle dividing line between a group which includes students (and staff) with disabilities, acting for and on behalf of a university population (democratic ap-

The University of Liverpool Disabled Access Survey

Campus Map Number: 72

Outside: Information on Parking/Steps/Access

Communication Studies

Entrance:- North Side Automatic Door

This entrance is on north side of west facing main entrance. Level access from pavement to automatic door. Use swipecard or bell/intercom to gain entry. Entry at basement level. Vertical wheelchair lift from basement to ground floor. Poor signs.

Parking

The nearest disabled parking space to this entrance is 20 m

The pavement has a dropped kerb

For details of parking see entrance survey for west side main entrance.

Access at this entrance

There are no steps for access to this entrance

The pavement is level with this entrance

The door width is more than 750 mm

The door is automatic

There is a swipe card or proximity switch at this entrance

There is an intercom

The intercom is 1400 mm from the ground

Level access from pavement. Gain entrance by using swipecard or bell/intercom. Door opens automatically and there is 60 second delay before it closes. Enter building at basement level but there is a vertical wheelchair lift which goes to ground level

Wheel Chair Route

Entrance is accessible from the Precinct Wheelchair Route

Entrance accessible from wheelchair route.

Library Access

For details of libraries see entrance survey for west side main entrance.

Student Services

For details of student services access see entrance survey for west side main entrance.

Information on Signs

The Precinct Wheelchair Route is not signposted here

Signs not as suitable for people with visual impairment

No signposts to indicate location of building or wheelchair route. No departmental or number sign on building. No sign to indicate use of automatic door suitable for wheelchair user.

FIG. 4. Communication studies—information about entrances. Information about access to this building indicates there are no problems with this entrance. There is level access (no steps), there is an automatic door and vertical lift. The nearest disabled parking space is 20 m and there is a dropped kerb. However, signage is poor.

proach), and a group who are seen as Hales' *ruling caste* who collected information on behalf of disabled students and staff concerning the accessibility of the University environment.

The concept of working together with disabled people had been an important consideration. Bringing together a group of occupational therapy students keen to learn about accessible environments, and the experience of disabled people them-

The University of Liverpool Disabled Access Survey

Campus Map Number: 8

Outside: Information on Parking/Steps/Access

Hartley (North): Tropical Medicine SACOS

Entrance:- On Brownlow Street, facing east.

Entrance not suitable for independent use by wheelchair user because of steps. Signs clear for visually impaired users (although non-tactile).

Parking

The nearest disabled parking space to this entrance is 100 m

The pavement has a dropped kerb

Nearest disabled parking is by the Mechanical Engineering building. Non-disabled parking is by entrance, but has no dropped kerb or room to transfer to a wheelchair from a side car door.

Access at this entrance

There is one step for access to this entrance

There is 200 mm from pavement to the level of the top step

The door width is more than 750 mm

The door is self closing

The door is heavy

There is no swipe card or proximity switch at this entrance

There is no intercom

Very uneven surface leading to entrance. Has double doors (single opening width = 760mm), usually kept locked and access gained via the adjacent Derby building. Door buzzer (not labelled) is 4500mm from ground. Has 1 step outside and 3 in inside.

Wheel Chair Route

Entrance is accessible from the Precinct Wheelchair Route

Entrance is on the wheelchair route but there is no dropped kerb nearby to allow access to the building.

Library Access

Harold Cohen Library is 175m away to front with no level access, rear entrance with level access is 475m along wheelchair route. Sydney Jones library is 500m away across 2 roads.

Student Services

300m away via wheelchair route which is uneven with insufficient dropped kerbs. Have to cross Brownlow Hill!

Information on Signs

The Precinct Wheelchair Route is not signposted here

Signs are suitable for people with visual impairment

No indication of wheelchair route on this part of the campus. Building is clearly labelled and signs are clear but non-tactile.

FIG. 5. Hartley North-Tropical Medicine—information about entrances. Clear information here about the problems of access for wheelchair users to this building. This information can now be used to formulate strategies for access. Experience with previous buildings can help in prioritising work.

selves seemed the ideal balance. It was supported by findings from the literature (Rioux, 1994; Walker, 1995; Finkelstein & Stuart, 1996) that this was the way forward and is supported by disabled people themselves. The initial survey was carried out by occupational therapy students alone, this was mainly the result of timing and funding. The audit carried out the following summer did involve a disabled student, but again insufficient disabled students were available to work over the summer vacation. In retrospect this was probably due to late organisation

The University of Liverpool

Disabled Access Survey

Location 42 on Campus Map

Chadwick Laboratory: Physics, Computer Science, Mathematics

GROUND Floor: Information on Doors/Toilets/Corridors/Lifts

Stair lift has been provided for access to lecture theatres, and could possibly be provided for access to toilets and lockers - subject to approval etc., should the need arise. Lift too narrow, everything else OK.

Information on doors

All doors do not have a minimum opening width of 750mm

The minimum door width is 600 mm

Double or one and a half doors increase width of opening. Some doors have been converted to automatic opening activated by switch on wall at convenient height for wheelchair user.

Information for Corridors

All corridors are at least 1200mm at the narrowest point

Corridors are free of obstructions that reduce width

Corridors are not free of change of level on this floor

Change of level at end of corridor has a) flight of stairs up to lecture theatres - stair lift has been installed, b) flight of stairs down to toilets - no stair lift at present. Both sets of stairs are of similar dimensions, so may be possible.

Information for Toilets

There is no disabled WC on this floor

The WC is not accessible using a wheelchair

There is no room to transfer from wheelchair to toilet

No disabled toilet. Male and female toilets only accessed via flight of 12 stairs. Lockers down a further flight of 12 stairs. Female toilets entrance OK but cubicles too narrow. Large space available.

Information for Lifts

This floor is accessible from a lift

Some rooms on floor not accessible from lift without steps

Toilet is not accessible from lift

Lift not OK for standard wheelchair (750mm by 1200mm)

Lift controls not less than 1500mm from floor of lift

There is level access to a fire exit

Lift doors 640mm - really too narrow for wheelchair, but just able to enter assisted using a standard wheelchair

FIG. 6. Chadwick Laboratory—information doors/toilets/corridors/lifts. Information in this building indicates some problems for wheelchair users: there are some internal stairs without lifts and there is no WC adapted for disabled people.

of the project. Input from disabled students with regard to their views, experiences and ideas was invaluable, and it is regretted that this was not possible for the audit itself.

While the survey was welcomed by those involved in student welfare and the university Senate, some heads of departments were not so positive. They were worried that the survey would highlight only the problems of the built environment in which they worked. They were also concerned that if such information was to be available on the Internet it would not be good publicity for the University of Liverpool. The building services department, while initially approving the audit

**The University of Liverpool
Disabled Access Survey**

Location 72 on Campus Map
Communication Studies

GROUND Floor: Information on Doors/Toilets/Corridors/Lifts

Access ground floor from all entrances except West Facing Main Entrance. Corridors, doorways wide. Doors heavy and wheelchair user may require assistance when opening. Main lift and vertical lifts also give access to ground floor. No level access fire exit.

Information on doors

All doors have a minimum opening width of 750mm

All doorways to rooms on ground floor are wide and will easily accommodate access of a standard size wheelchair. Doors are self closing, heavy - wheelchair user may need assistance when opening. Handles at suitable height when seated in wheelchair.

Information for Corridors

All corridors are at least 1200mm at the narrowest point

Corridors are free of obstructions that reduce width

Corridors are free of change of level on this floor

Corridors wide and free of obstacles or changes in level. All corridors have at least 2 sets double fire doors. Opening of one door enough to gain wheelchair entrance. However, doors heavy, self closing - wheelchair user may require assistance when opening.

Information for Toilets

There is a disabled WC on this floor

The WC is accessible using a wheelchair

There is room to transfer from wheelchair to toilet

Disabled WC on this floor. Door to WC heavy, self closing - wheelchair user may require assistance when opening. Grab rails in WC poorly placed. Toilet too low for comfortable sideways transfer from standard height wheelchair. Water heater obstructs sink.

Information for Lifts

This floor is accessible from a lift

All rooms on floor accessible from lift without steps

Toilet is accessible from lift

Lift OK for standard wheelchair (750mm wide by 1200mm deep)

Lift control buttons less than 1500mm from floor of lift

There is no level access to a fire exit

Access all floors from main lift - adequate design for wheelchair user. Lift has voice which indicates doors closing etc. Building also has indoor vertical wheelchair lift from basement to ground, and external vertical lift from pavement to basement.

FIG. 7. Communication Studies—information doors, toilets/corridors/lifts. Clear information here about the accessible areas within the building, access to floors via lifts and access to WC's.

instrument, also expressed concern that they would be inundated with requests for major building alterations, for which there may be insufficient funding. Initially, concerns/complaints were expressed to the student welfare sub-committee and, although seemingly negative, these were welcomed. It provided an opportunity to liaise with departments, to share their concerns and to demonstrate the benefits gained by developing a body of knowledge that was previously unknown. Not only was practical information available, but prejudices and ignorance about disability were raised. In one instance, a head of department indicated that both his building and course were not suitable for a disabled student. Following discussion he understood the purpose of the survey and changed his mind. He began to accept that although problems did exist, they were not insurmountable. He even began to

The University of Liverpool Disabled Access Room Surve

Location 42 on Campus Map
Chadwick Laboratory: Physics, Computer Science, Mathematics
GROUNDFloor : Room T6 LAB

Bench height is the only problem.

Local Access

Level access from the main entrance of the building
There is level access from the lift

OK.

Doors

The width of the main door to the room is at least 750mm
The width of other doors to the room is at least 750mm

OK. Half doors further increase width of entrance.

Levels

The room is just one level
There is a door with level entry at ground level
Essential learning can take place at ground level
There is an alternative level access to a fire escape

OK.

Special Equipment / Benches

There is some special equipment/benches in this room
The special equipment is accessible from a wheelchair

Benches for experiments are quite high . 900mm. Some disabled students may experience difficulty in using equipment.

Audio Visual Aids / Induction Loop

There no induction loop for hearing aids
Signs and AVAs are OK for visual impairment

OK

FIG. 8. Chadwick Laboratory—information about lecture theatres/laboratories. Information on the T6 laboratory indicates level access from the lift, the lab is one level, benches rather high for wheelchair users, no induction loop for hearing impaired, but signs and audio visual aids adequate.

consider what aspects of his course could be adapted to suit a disabled student. He looked positively at existing facilities and what could be used now without too many barriers, and began thinking towards an inclusive environment in his department. Such individual and personal contacts are time consuming, but enable a project such as this to move forward, and promote the psychological dimension of change that is not always fully acknowledged and recognised. The potential of disabled people, and

The University of Liverpool Disabled Access Room Survey

Location 42 on Campus Map

Chadwick Laboratory: Physics, Computer Science, Mathematics

GROUND Floor : Room SMALL LECT

OK once access has been gained via stair lift.

Local Access

No level access from the main entrance of the building

There is no level access from the lift

There are more than five steps for access from the lift

There is one flight of stairs for access

A stair lift has been provided for disabled authorised users.

Doors

The width of the main door to the room is at least 750mm

The width of other doors to the room is at least 750mm

OK, medium weight push/pull doors.

Levels

The room is on more than one level

There is a door with level entry at ground level

Essential learning can take place at ground level

There is an alternative level access to a fire escape

Fire escape using stair lift to 2 main entrances.

Special Equipment / Benches

There is no special equipment/benches in this room

Tiered lecture theatre. Disabled student / wheelchair user could sit at front.

Audio Visual Aids / Induction Loop

There no induction loop for hearing aids

Signs and VVAs are OK for visual impairment

Loop would be useful

FIG. 9. Chadwick Laboratory—information about lecture theatres/laboratories. Access to the small tiered lecture theatre is via flight of steps, but there is a stair lift for authorised users. Wheelchairs users can access the room at the front, no induction loop, alternative fire access via stair lifts—personal emergency egress plans (PEEPS) would need reviewing.

particularly disabled students in this environment to become involved in disability awareness issues should not be overlooked.

Disability Does not Always Include a Wheelchair

In carrying out this survey it became apparent that most of the personnel encountered only thought of disabled students as being someone in a wheelchair. This

confirms Napolitano's (1996) view that public awareness of the needs of mobility-impaired people has been well documented. The level of awareness about them in the general population as a whole is quite good. Awareness of the needs of people with other impairments was less evident. Many did not realise that when re-decoration is carried out, doors are automatically colour coded/contrasted to assist people with visual impairment. The problems of signage was also highlighted. Although there is a rolling programme to improve clarity and siting of notices, many saw this as only creating a better image for the university. The use of induction loops for those with a hearing impairment was also highlighted. These do not exist in many of the older lecture theatres, but by bringing this facility to the attention of the building services representative, they can be planned into future building upgrades.

Many of the university personnel were only too aware of positive and negative features of their own buildings and departments, but did not know how to publicise the good ones and improve the poor ones. There are several examples of internal and external wheelchair platform lifts having been installed, but these are not being used mainly because other staff and students do not know they exist. There is now a central register of information of facilities in each building across the campus. For example, if a department wishes to book rooms with facilities for wheelchair users, and this might include an adapted toilet, level lecture theatre and additional tutorial rooms, it is now possible to do this from the computer database. Although this sounds like stating the obvious, one of the authors has on previous occasions wasted much time telephoning individual departments to ask for very specific needs of visitors to the university.

Following the initial survey an article appeared in 'Precinct', the University of Liverpool's information paper. This is published monthly to inform staff and students about current developments within the university. The article gave a brief resume of the project and included a photograph of the students at work. Following this the sub-committee was contacted by other departments asking for more information and advice on how they could best publicise access to their departments and even offered assistance for further studies.

Limitations of the Built Environment

On completion of the survey students were interviewed, using a focus group, to gain some insight into their own learning about accessible environments. Overall, they all commented on how much they had learned. The problems and potential hazards encountered by people with visual and mobility impairments had surprised them. Beforehand, all felt they had a good awareness of disabled people's needs, but it wasn't until they had to encountered the difficulties themselves, and had spoken to disabled students that they understood what this meant in practice. Everything took much longer, often because the wheelchair route involved a detour or lack of adequate signs meant doubling back on routes. The acceptability of having to allow extra time for everything stimulated debate. If our environment is inclusive, nobody should have to allow extra time. It was the built environment that disabled them not any impairments.

The Future

Accessibility can not be guaranteed by good design alone. The policies and procedures for the everyday running of a building will have an impact on how easy it is to use by disabled people. For example, a spacious lift lobby will be rendered useless if it is used for temporary storage. Installing an induction loop in a lecture theatre is ineffective if no one knows how to use it. Equipment such as stair lifts and remote control doors need routine checking, and procedures for answering access doorbells for disabled people need to be explained to new staff, students and visitors. All require a planned and co-ordinated strategy from a body which includes those responsible for the planning and those who will use the services and facilities. The disabled users access group and the sub-committee have been an attempt at such a strategy.

There are currently almost 600 pages available to view by students and staff on the in-house managed PC network, and by visitors and potential students via the Internet. Part I includes 58 pages of information about the outside and entrances to buildings; Part II includes 113 pages of information about doors, toilets, corridors and lifts within each building; and Part III includes 228 pages of information about access and facilities to teaching rooms, laboratories and lecture theatres.

Conclusions

Completing the building survey has enabled those involved to create an accurate data base of information about the university's built environment. In doing so, it has been possible to update and re-instate the wheelchair route across the campus. Buildings with good internal and external access have been identified and strategies put in place to keep a register for booking these. Similarly, buildings with difficult access can also be considered in long term building refurbishment plans. The on-going strategy with regard to signage is also being co-ordinated with building services and architects who now have access to resources such as that from the Joint Mobility Unit (1993). Capital expenditure is always limited in today's economic climate, and therefore it is even more important to priorities building work according to need and resources. Disabled people constantly encounter barriers due to negative attitudes and inaccessible environments, we have certainly encountered these too. The philosophy that all people have the right to equal participation in society, education and work, helps in creating an environment that sends out positive messages to the community and should provides a better working environment for us all.

Acknowledgements

The authors acknowledge the assistance received in this project, especially to the students who collected the data, and John Davies who created the computer database.

REFERENCES

- FEARNS, D. (1993) *Access Audits: a guide and checklists for appraising the accessibility of buildings for disabled users* (London, Centre for Accessible Environments).
- FINKELSTEIN V. & STUART O. (1996) Developing new services; in HALES, G. (Ed.) *Beyond Disability: towards an enabling society* (London, Sage Publications).
- GOODING C. (1995) Employment and disabled people: equal rights or positive action; in ZARB, G. (Ed.) *Removing Disabling Barriers* (London, Policy Studies Institute).
- HALES, G. (Ed.) (1996) *Beyond Disability: towards an enabling society* (London, Sage Publications).
- HESA (1997) *HESA Data Report: students in Higher Education Institutions* (Cheltenham, Higher Education Statistics Agency).
- HINDE, A. (1995) Designing to overcome handicap, *British Journal of Therapy and Rehabilitation*, 2, pp. 488–490.
- HMSO (1991) *The Building Regulations: access and facilities for disabled people Approved Document M* (London, HMSO Publications).
- HMSO (1995) *Disability Discrimination Act* (London, HMSO Publications).
- JOINT MOBILITY UNIT (1993) *The importance of inclusive design* [London Royal National Institute for the Blind & Guide Dogs for the Blind Association (RNIB/GDBA)].
- NAPOLITANO, S. (1996) Mobility Impairment, in: HALES, G. (Ed.) *Beyond Disability: towards an enabling society* (London, Sage Publications).
- OLIVER, M. (1990) *The Politics of disablement* (Basingstoke, Macmillan).
- PALFREYMAN, T. & THORPE, S. (1994) *Designing for Accessibility: an introductory guide* (London, Centre for Accessible Environments).
- POINTON, A. (1992) Access and the Architect, in: D. JONES & P. BARKER (Eds) *Disabling World*, (London, Channel 4 Television Publication).
- RIoux, M.H. & BACH, M. (1994) *Disability is not Measles: new research paradigms in disability* (Ontario, Roehar Institute).
- ROYAL COLLEGE OF PHYSICIANS (1992) *A Charter for Disabled People Using Hospitals* (London, Royal College of Physicians).
- SKILL (1992) *Students with Disabilities in Higher Education: a guide for all staff* (London, National Bureau for Students with Disabilities).
- SKILL (1994) *Developing an Approach: provision for disabled students in higher education* (London, National Bureau for Students with Disabilities).
- THORPE, S. (1995) Adapting the external environment, *British Journal of Therapy and Rehabilitation*, 2, pp. 479–482.
- WALKER, A. (1995) Universal access and the built environment: from glaciers to the garden gate, in: ZARB, G. (Ed.) *Removing Disabling Barriers* (London, Policy Studies Institute).