Disability equality and discrimination in higher education:

staff and student perceptions of the 'reasonable' adjustments made for print disabled students

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Abstract

The aim of this research was to explore staff and student experiences of the barriers print disabled students face and the adjustments made to overcome these. Universities are obliged by the Special Education Needs and Disability Act 2001 and the Disability Discrimination Acts 1995 and 2005 to make 'reasonable' adjustments, but receive only limited guidance as to how far they have to go to do this.

No literature, research-based or otherwise, has so far dealt with the full range of issues relating to the implementation of adjustments for print disabled higher education students and until now few questions have been asked about why difficulties arise. Some studies have dealt with general issues relating to disabled higher education students (e.g. Riddell, Tinklin and Wilson, 2004; Fuller et al., 2006; Healey, Fuller, Bradley and Hall, 2006) but their conclusions are not fully applicable to print disabled students. Other literature has looked at issues relating to the accessibility of documents (e.g. RNIB, 2003, 2004, 2006; JISC TechDis, 2006a, 2006b, 2007a, 2007b) but does not consider how these issues affect higher education students. A small amount of literature focuses on general issues affecting print disabled students, but so far this has only focused on the underlying impairments that lead to it in isolation (e.g. visual impairment – Roy, 2003; or dyslexia – Riddick, 2001). Several sources have produced guidelines for making reasonable adjustments for students with dyslexia (e.g. The University of Nottingham 2006a) and visual impairments (e.g. West Virginia University, 2005b), but no comparisons appear to have been made been the similarity of the two.

This study expands on previous research to explore the experiences of print disabled students, both from the perspective of print disabled students themselves but also from the perspective of the staff who support them. It explores the impact of the medical and social models of disability, as well as the mediatory model of disability displayed by the disability legislation.

Its findings suggest that whilst universities have made considerable progress in reducing discrimination and promoting equality, print disabled students still experience significant problems. It concludes that whilst

SENDA 2001 has contributed to the progress that has been made, legislation alone may not be capable of producing the cultural change that is needed.

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Preface

When I began my undergraduate degree at the University of Nottingham in September 1999 I did not consider myself to be disabled. I had experienced poor eyesight all my life, as well as several long-term medical conditions, but without even realising it my family and teachers had made adjustments to overcome the barriers I experienced as a result of these. I always sat at the front of the class, photocopies were enlarged to A4 if necessary, I occasionally used a magnifying sheet and several exam times had been moved to accommodate my fatigue, but the word 'disabled' had never been used.

On arriving for my first lecture I realised that even sitting in the front row of the huge lecture theatre I could barely see what was written on the white board or make out the features of my lecturer's face, and although I cannot remember his name I will forever be grateful to him for suggesting I visit the 'Learning Support Unit'. I had a DSA assessment and discovered I was eligible for support. When my vision suddenly started to deteriorate further in December 1999 this was to prove invaluable.

Although the exact cause has never been identified, I began to experience bouts of Optic Neuritis, where the nerve to my right eye became inflamed, and after time permanent damaged occurred. As my left eye had been of little use since birth this meant I was registered as partially sighted in November 2001. The following year I was diagnosed as having a severe spinal deformity which required major surgery, and left me with chronic back pain. Inflammation began to occur in other other nerves around my body, initially my auditory nerves, and as a result it is now thought that I have some type of autoimmune disease. In 2005 I was given hearing aids, and in 2008 and 2010 I had operations on nerves in my hands.

Whilst these difficulties have naturally meant that I have faced many barriers during higher education, they also led to a desire to find out more about the experiences of other disabled students. After much reflection it became apparent that it was my visual impairment, or rather the barriers I faced in terms of accessing printed materials, that had had the greatest impact on my own studies. I had been tempted to give up my studies many times, but was eventually encouraged to try to achieve something more positive. What you are about the read is my attempt to do just that.

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1. Introduction

This thesis investigates the experiences of print disabled university students and the staff who support them. This new and original research utilises a critical analysis of the social model of disability to explore the way in which such staff and students define and understand disability and reasonable adjustments. It considers the adjustments that are made and the problems that arise with their implementation. It explores how differences in theoretical understanding affect perceptions of, and levels of satisfaction with, adjustments. In doing so it examines the achievements and limitations of SENDA 2001.

1.1 Outline of research

1.1.1 Background

Previous research into student experiences has tended to focus on disabled students in general, rather than on print disabled students in particular. As a result, the number of print disabled students included in most studies is not known, although estimates of these can be made. Studies generally state how many students with dyslexia took part, but as many do not require adjustments to standard-format print not all are print disabled according to the definition used in my research. Whilst studies of disabled students generally include a satisfactory number of students who have dyslexia, students with visual impairments are less well represented. For example, 34.5% of Fuller *et al.*'s sample had dyslexia whilst only 0.8% had visual impairments (Fuller *et al.*, 2004, p310).

My personal interest in this research area stems from my own experiences of difficulties accessing materials as a student with a visual impairment, as well as those of my friends and colleagues who have visual impairments themselves or support students with visual impairments. Pilot research completed as part of my MA dissertation suggested standard-format print is a major barrier to learning for students with various impairments and conditions, and one that leaves many 'print disabled'. The shared barriers print disabled students face when attempting to access course materials was revealed by this pilot research to be more pertinent in terms of making adjustments than differences in the type or degree of their impairment. It was, therefore, experiences of the disabling nature of this barrier, rather than type of impairment, that determined eligibility to take part in this research. As a result, all students who self-identified as experiencing difficulty accessing standard-format print and requiring adjustments to print size or formatting were invited to take part, regardless of their underlying impairment.

1.1.2 Print impairment versus print disability

The term 'print impaired' is more commonly used and understood than 'print disabled' so was used during the data collection stage. This was to avoid alienating students with conditions such as dyslexia who do not always readily identify themselves as 'disabled'. Using the social model of disability, however, it can be seen that the term 'print impairment' is inaccurate and potentially misleading. Whilst students who have certain impairments may find their access to print is impaired, this is because they are disabled by society's regular use of standard-format print rather than by their impairment *per se*. It is the use of standard-format print that is the barrier to their access to materials, rather than their underlying impairment. Using this model, society is therefore required to make adjustments to allow them full access. Utilising the social model of disability in this way thus requires such students to be described not as 'print impaired students' or 'students with print impairments' but as 'print disabled students'.

1.1.3 Research Methods

Qualitative research methods were used to explore the experiences of students who face what the social model of disability refers to as 'barriers' in terms of accessing materials and receive 'reasonable' adjustments under SENDA 2001. Semi-structured face to face interviews were carried out with 15 students (although one was later removed) and 29 staff. Qualitative methods were also employed to investigate the Disability Equality Statements produced in 2006 by the four universities studied and to analyse the responses to electronic questionnaires received from seven additional student participants.

1.2 Research questions

The research question at the heart of this thesis is:

> What barriers do print disabled students face, what reasonable adjustments are made to overcome these barriers, and how do staff and students feel about these barriers and adjustments?

In order to answer this question it is necessary to divide it into several further questions:

> Which models of disability do universities, staff and students utilise?
> What adjustments are made for print disabled students and in what situations are they necessary?
> What problems arise with the implementation of adjustments?
> How reasonable are the adjustments made?
> How satisfied are staff and students with these adjustments?
> How far do the expectations raised by particular models of disability affect staff and student perceptions of adjustments?

The intention of the study was to research perceptions of: disability in general; print disability in particular; the barriers print disabled students face; and, the reasonable adjustments made to overcome these barriers.

1.3 Terminology used

In this research, the terms 'print impaired' and later 'print disabled' were used to refer to students who have visual impairments, dyslexia, and any other impairments that prevent them from being able to comfortably read 12 point font. This terminology was chosen as it encompasses the various different underlying impairments that may lead to difficulty reading standard-format print and moves away from older terminology that relates primarily to visual impairment. For example, the Right to Read Alliance, "a coalition of nineteen organisations who work successfully with publishers, government, libraries and charities" (RNIB Website, 2009) has been working to raise awareness of issues relating to access to information for those with "a sight problem or print reading disability" (*Ibid.*). One successful outcome of their campaign is the upgrade of the Copyright Licensing Agency (CLA) 'VIP Licence' to a 'Print Disability License.' This improved license includes the production of alternative formats for all those who have difficulty reading standard-format print for reasons relating to disability, unlike the former license which only covered those with visual impairments. Although this was not announced until 28th May 2010, long after my research began, the press release reveals that this upgrade was made "to reflect a recent widening of the definitions of print disability to include not just those people who have a visual impairment but also those with another disability that prevents them from reading books as easily as others" (CLA Website, 2010).

Throughout this thesis, the terminology that is used is that suggested by the social model of disability, except where another person who uses different terminology is being quoted or paraphrased. Terms such as 'student(s) who have dyslexia' and 'student(s) who have visual impairments' are used in preference to 'visually impaired student(s)' and 'dyslexic student(s)'. The terms 'disabled student(s)' and 'print disabled student(s)' are used instead of 'students with disabilities' or 'students with print disabilities'. Students are not referred to solely in terms of their impairments, e.g. 'dyslexics/a dyslexic', 'the visually impaired', 'the disabled', as this is generally considered offensive. All full discussion of why these terms are preferred by the social model is given in Chapter 2.

Similarly, students who have not disclosed an impairment are referred to as 'non-disabled students' or 'non-print disabled students' and terms such as 'able-bodied', 'normal' *etc.* are avoided.

1.4 Disability legislation and other guidelines

Disability legislation relating to higher education has come a long way in the past 15 years. In 1995, universities only had to prepare a short disability statement outlining what they were doing to support disabled students, and until 2001 the law did not specify how much support they needed to provide. Since 2006, universities have had to produce a much more detailed document, called a Disability Equality Statement (DES), make it publicly available and update it every year. This section documents the most relevant changes that have taken place since the 1990s.

1.4.1 The Disability Discrimination Act (DDA) 1995

The Disability Discrimination Act (DDA) 1995 aims to prevent discrimination on the grounds of disability and contains provisions on employment, access to goods and services and the buying or renting of property. The definition of disability contained in the Act is: "a physical or mental impairment which has a substantial and long-term adverse effect on his ability to carry out normal day-to-day activities" (DDA 1995, s.1 (1)). The DDA 1995 states that adjustments should be made where access to goods or services (or any of the other areas covered) is "impossible or unreasonably difficult" (DDA 1995, s.21 (1)) for disabled people. Whilst not strictly acknowledging the 'fault' of society for the barriers it creates, it does attempt to ensure that people with impairments are better accommodated within society. It ignores a significant part of society however: the education system.

Although Part IV of the DDA 1995 relates to post-16 education, it would seem that under this legislation it was thought unnecessary, or perhaps, impractical, to remove barriers to further and higher education. Instead of imposing similar duties on education providers to those imposed on employers and service providers, the Act does little more than place a requirement on some post-16 education providers to produce a disability statement (DDA 1995, s.30 (3)). Of course, although it was not yet a legal requirement, most post-16 education providers were already attempting to implement strategies designed to meet the needs of all their students, but provision was often *ad hoc* and varied greatly from one provider to the next.

1.4.2 HEFCE guidance 1999

In January 1999 HEFCE published the findings of a study they had commissioned looking at base level provision of support for disabled students in higher education. Of particular note in relation to this research are the comments made in relation to dyslexia, "not all academic staff appreciate the significance of dyslexia and the impact it can have on learning" (HEFCE, 1999, p.13) and visual impairment, "in addition, lecturers should think about the formats of curriculum materials" (HEFCE, 1999, p.14). These sentiments are echoed through the staff and student accounts provided in this thesis, and so it is obvious that these issues are still problematic more than a decade later. The report concludes that base level provision should include the following list of items:

- written policies and procedures to cover the admission of students with disabilities
- clearly articulated arrangements to assess individual students' needs
- the provision of services to reflect agreed needs
- clearly defined internal referral arrangements to secure appropriate facilities for individual students
- written policies and procedures for examinations and assessments specifically for disabled students
- a staff development strategy, to include academic, administrative and support staff
- dedicated specialist staff and an identified budget
- an estates strategy to improve physical access to institutional facilities systems to collect and analyse data and monitor and evaluate policies.

HEFCE, 1999, p.25.

This expectation of base level provision remained in place until the introduction of the Special Education Needs and Disability Act (SENDA) 2001.

1.4.3 The Special Educational Needs and Disability Act (SENDA) 2001 and the Statutory Code of Practice

Six years after the DDA 1995 was introduced, the Special Educational Needs and Disability Act (SENDA) 2001 replaced Part IV of the DDA 1995, extending its remit to include a much wider range of institutions providing post-16 education (SENDA 2001, s.28R). Whilst the majority of the legislation came into force on 1st September 2002, the provision of auxiliary aids and services (e.g. employing notetakers) was not covered until 1st September 2003, and universities were given a further two years to make physical adjustments (e.g. installing ramps).

SENDA 2001 actually goes further than the DDA 1995, forcing universities to make 'reasonable' adjustments to ensure that they do not discriminate against disabled students (or prospective disabled students) or place them at a "substantial disadvantage" (SENDA 2001, s.28T (1)). In some circumstances, however, it still allows universities to justify treating a disabled person less favourably if their grounds for doing so are "both material to the circumstances of the case and substantial" (SENDA 2001, s.28S (8)). When deciding whether such treatment can be justified, certain things can be taken into consideration, for example: cost; impact on other students; academic standards; health and safety; other services and auxiliary aids available; and, whether or not a student has disclosed his or her disability.

Some provisions only apply in cases where the university can reasonably be expected to know that a student has a disability. For example, a student has an obvious disability (e.g. is a wheelchair user) or, has disclosed that he or she has a disability (SENDA 2001, s.28S (3)). The Act states, however, that universities cannot claim that they do not know that a student is disabled unless reasonable steps have been taken to find this out by providing suitable opportunities for the student to disclose. It should be noted that if a student discloses that he or she is disabled but asks for either the nature or the existence of this disability to remain confidential, this "confidentiality request" (SENDA 2001, s.28T (5)) can potentially reduce the extent of the university's liability under the Act. This is because a university is only expected to make such adjustments as can reasonably be made without revealing the nature or existence of the student's disability.

The Act also placed an 'anticipatory duty' on universities, requiring them to consider not only the needs of the individual disabled students known to them, but also the needs of possible future disabled students. For example, universities are expected to make adjustments to ensure their campuses are wheelchair friendly (e.g. widening doorways, and installing ramps and accessible toilets) even if there are currently no wheelchair users studying there, on the basis that it is likely that such adjustments will be required by prospective or future students. This anticipatory duty has the potential to help students who do not wish to disclose that they are disabled or have made a confidentiality request. Despite this such students still have only limited protection under SENDA 2001.

Since SENDA 2001 requires universities to make 'reasonable' adjustments, but does not suggest what this might entail, the Disability Rights Commission (DRC) created a 'Code of Practice for Providers of Post-16 Education and Related Services'. This document was designed to provide:

> ... practical advice on how to avoid discrimination against disabled people and students wanting to access education or other related provision. It describes the duties on the bodies responsible for this provision. The Code also helps disabled people to understand the law and what they can do if they feel they have been discriminated against.
>
> *DRC, 2005a, p.12.*

Whilst the Code of Practice is not legally binding, it "can be used in evidence in legal proceedings under the Disability Discrimination Act" and "courts must take into account any part of the Code that appears to them relevant to any question arising in those proceedings" (DRC, 2005a, p.13). At the time field research was carried out SENDA 2001 was still the main piece of legislation covering disabled students in higher education. This is still the case, but it has been extended further by the new Disability Discrimination Act 2005.

1.4.4 The Disability Discrimination Act (DDA) 2005 and Code of Practice

The DDA 2005 expanded on the previous 1995 Act in a number of ways, and the DRC produced a Code of Practice to accompany this new legislation which has a similar purpose to the Code of Practice produced for SENDA 2001.

One noticeable change is that the DDA 2005 extends the definition of disability used by the DDA 1995. Whilst it is still the case that a person can be deemed to be disabled for the purposes of the Act "where he has a physical or mental impairment which has a substantial and long-term adverse effect on his ability to carry out normal day-to-day activities" (DDA 1995, s.1 (1)) there are also some significant changes to the supplementary schedules that relate to this definition. For example, it is no longer necessary for a mental illness to be "clinically well-recognised" (DDA 2005, s.18 (2)). Perhaps more importantly, those particularly at risk of discrimination do not necessarily have to prove that their condition itself has an 'adverse effect'. Those who have HIV, cancer or Multiple Sclerosis are now covered from the point of diagnosis, rather than from when their symptoms become more severe (DDA 2005, s.18 (3)) and those with severe facial disfigurements are also included. This is a recognition of the attitudinal barriers faced by disabled people, and the revised Code of Practice, 2007, states this explicitly.

> The concept of discrimination in the Act, reflects an understanding that functional limitations arising from disabled people's impairments may not inevitably restrict their ability to participate fully in society. It is often environmental factors (such as the structure of a building, or an education provider's practices) or attitudes which unnecessarily lead to these restrictions. This principle underpins the duty to make reasonable adjustments described in Chapter 5. Understanding this will assist education providers in avoiding discrimination. It is as important to consider which aspects of education provision create difficulties for a disabled person as it is to understand the particular nature of an individual's disability.
>
> *DRC, 2007, pp. 114-5.*

This suggests that legislators have taken some account of the idea that society has a part to play in disabling people with impairments. The Code of Practice accepts that 'environmental factors' may contribute to this, but arguably the social model of disability described in Chapter 2 goes further than this.

The DDA 2005 came into force on 5th December 2006 and places public authorities, including universities, under a Disability Equality Duty (DED) to eliminate unlawful discrimination, promote disability equality and encourage the involvement of disabled people in public life. This Act mirrors the Race Equality Duty introduced by the Race Relations (amendment) Act 2000, and is designed to help tackle institutionalised discrimination. As well as a General Duty, which applies to all 'Public Authorities', certain listed Public Authorities (including universities) also have a Specific Duty under DDA 2005. The Specific Duty includes the requirement for each university to produce a Disability Equality Scheme (DES) by 4th December 2006 which outlines how it is preparing to meet this duty, and to update this every year (DRC, 2005a, para.3.4). This Act removes some of the onus on individuals to bring cases against organisations in relation to specific incidents of disability discrimination. Instead, the Specific Duty requires them to explain the pre-emptive measures they have made to avoid this being necessary. This is an important change to the 'burden of proof' and provides more opportunities for bringing legal action. The first DESs that the four institutions provided in 2006 therefore provide important background information about them as they were produced shortly before fieldwork began. These are discussed further in Chapters 3 and 4.

1.4.5 The Equality Acts 2006 and 2010

Although the Equality Acts of 2006 and 2010 were introduced after fieldwork began they are worth mentioning briefly here. The Equality Act 2006 replaced the three separate commissions - the Disability Rights Commission, the Commission for Racial Equality and the Equal Opportunities Commission - with one commission to deal with all aspects of equality. This is called the Equality and Human Rights Commission (EHRC). Issues relating to disability equality and discrimination were brought together with those relating to race, gender, religion, and sexual orientation for the first time.

As with the 2006 Act, the 2010 Act relates to the following 'protected characteristics': age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion or belief; sex; and, sexual orientation (Equality Act, 2010). It is designed to "to update, simplify and strengthen the previous legislation; and to deliver a simple, modern and accessible framework of discrimination law which protects individuals from unfair treatment and promotes a fair and more equal society" (Government Equalities Office website, 2010). By August 2010 the new coalition government had not yet announced how it would interpret and enforce the provisions of the Act, although the previous Labour government's timetable had "envisaged commencement of the Act's core provisions in October 2010" (*ibid.*).

1.5 'Barriers' and 'adjustments'

The term 'barrier' comes from the social model of disability while the term 'adjustment' comes from SENDA 2001. Both terms are central to the understanding of how the social model of disability and the various pieces of disability legislation discussed above underpin this research. The following discussion attempts to elucidate the three types of barrier that this research defined as existing in higher education and outline the method used to classify types of 'reasonable' adjustment.

1.5.1 Barriers

1.5.1.1 Institutional, non-institutional and attitudinal

The barriers that print disabled students face in accessing materials are, following the social model of disability, socially created. There are, however, various types of barriers (discussed in Chapter 2). In this thesis the barriers print disabled students face are classified as being either *institutional or non-institutional.* This distinction is made as a way of understanding how much influence an institution has over the barriers its students face and the adjustments that are made to overcome these.

Institutional barriers result from decisions, policies and practices that are within the control of the institution. They are caused by the university in some way, be it through course design, policy or practice. Non-institutional barriers are those that are not caused directly by something the university does or does not do, but by other forces in society. For example, an individual institutional may be responsible for the barriers it creates if it provides lecture materials only in standard-format print. If the university library only contains books in standard-format print, however, then unless the publisher also provides a more accessible format that the library could have chosen to supply, this is a non-institutional barrier.

An additional factor in classifying barriers, however, is to recognise that there are many different types of barrier: physical, practical, technical, logistical, and so on. They can also be attitudinal, and it is barriers of this type that are perhaps the easiest to address by rewriting policy, but the hardest to remove in practice. Policies and practices, both institutional and non-institutional, that seek to remove barriers or make adjustments may be let down by individuals whose attitudes towards disabled students perpetuate disablism by creating barriers or failing to make reasonable adjustments. This often happens inadvertently as a result of poor understanding and/or awareness of disability issues and legislation. In some cases, people may be disabled primarily by the attitudinal barriers they face (as is the case with those with severe facial disfigurements, for example) and the ways in which they may be overcome are similar to those used to promote equality in terms of gender and race. It is important to note that student's own attitudes can also affect their experiences of barriers and adjustments, and their own actions and responses can potentially contribute to the disablism they experience.

1.5.2 Adjustments: anticipatory versus responsive, general versus individual

SENDA 2001 introduced the requirement to make *anticipatory* adjustments, and in this research this is seen as being the opposite of a *responsive* adjustment. Anticipatory adjustments are those that are made in advance of a specific student or group of students needing to overcome a barrier, and responsive adjustments are those that are made in direct response to a student's need to overcome a barrier.

Responsive adjustments may be subdivided into two further categories: *general* and *individual*. General adjustments are those made in a way that benefits all students, for example putting electronic versions of lecture handouts and presentations on a Virtual Learning Environment (VLE) so that all students can access them in advance of lectures and format them as they wish. An example of an individual adjustment would be where an accessible version of a handout or presentation is produced and made available only to a particular student. By their nature anticipatory adjustments are always general.

1.5.3 Making adjustments: 'reducing' versus 'removing' barriers

The phrase 'overcoming barriers' is frequently used in this thesis, but it can refer to either of two slightly different things. Overcoming a barrier may mean removing it entirely, or it may mean making an adjustment that reduces that barrier or its disabling effect.

One way of understanding this is to consider a common example of a barrier to physical access. If the main entrance to a bank is at the top of a flight of steps, these steps clearly present a barrier to accessing that bank for customers who are wheelchair users (and many others as well). This barrier can be removed by building a permanent ramp that circumvents the need to climb the steps to access the bank. Alternatively, a removable ramp can be provided on request, or wheelchair users can be directed to an alternative entrance or even an alternative branch that does not have steps. These alternatives would reduce the barrier but not remove it, as the main entrance to this branch of the bank, which other customers can use, is still inaccessible to wheelchair users. Whether simply reducing the barrier is a sufficiently 'reasonable' adjustment would depend on, for example, whether the cost of providing a ramp is unreasonable compared to the size of the company that owns the bank and their annual turnover. Although the legislation relating to access to goods and services is slightly different to that relating to access to post-16 education, the justifications that can be made for not making an adjustment or for making an adjustment that does not completely remove a barrier are similar.

In the case of post-16 education, a library or lecture theatre could be substituted for the bank in the example above. If there are sound reasons why a permanent ramp cannot be built, providing a portable ramp, using an alternative entrance or another lecture theatre may be a reasonable adjustment. The question of whether or not an adjustment that reduces but does not remove a barrier is sufficiently reasonable will depend on a number of factors, as is outlined in Section 1.4.3.

1.6 Funding for adjustments

1.6.1 Disabled Students' Allowance (DSA)

Most undergraduates and self-funded postgraduates whose fee status is as 'home' (UK domiciled) students can apply for centrally funded DSAs, although the body they apply to varies according to whether they normally live in England, Wales, Scotland or Northern Ireland. At the time of data collection, students normally resident in England (all of the 'home' students who took part in the study) had to apply to their Local Education Authority (LEA) for DSA. Students entering higher education from September 2009 now have to apply to Student Finance England (SFE). NHS funded students can still apply for DSA from the NHS, and postgraduates who receive full funding from a funding body (e.g. a Research Council) can usually apply for DSA from that body. If a postgraduate student is self-funded or the funding body cannot provide DSA then the student can still apply to their LEA or SFE.

The main official source of information about DSAs is the Directgov website. Although it has been updated as the result of a review of SFE, in January 2009 the Directgov website explained that DSAs are designed to: "help meet the extra course costs students can face as a direct result of a disability or specific learning difficulty. They are aimed at helping disabled people to study on an equal basis with other students" (Directgov website, 2009). In order to qualify for a DSA, students must provide evidence of their disability, and in 2009 this was very medically based:

> If you have an impairment or a medical condition - this includes long-term illnesses and mental health conditions - you will need to provide *medical proof* of this, such as a letter from an appropriate *medical professional*.
>
> *Directgov website, 2009, emphasis added.*

This cannot be fully reconciled with social model definitions of impairment and disability (see Chapter 2) as it is a medical definition that is being used as the basis for proving eligibility and medical professionals therefore act as gatekeepers of this funding. This is not surprising given that it is based on legislation that does not fully adopt the definition of disability suggested by the social model (see Chapter 2).

The evidence required for DSAs can usefully be contrasted with the government funded Access to Work Scheme which provides funding for disabled people in paid employment of more than 16 hours a week. This scheme does not require any form of medical evidence; recommendations for equipment and support are based solely on testimony from the employee and, if necessary, recommendations made by an assessor. This is more in keeping with the social model approach since the employee is involved in the process and medical professionals are not. As with DSAs, funding provided to individuals under the Access to Work Scheme is not means-tested, although employers may have to contribute towards some of the cost.

1.6.2 HEFCE funding

DSA funding is intentionally individualistic, since it only pays for adjustments to be made for the student in question. In the case of the four universities studied in this research other funding is provided by the Higher Education Funding Council for England (HEFCE). This is designed to meet the costs of more general adjustments, as well as those which are anticipatory rather than responsive. This funding is therefore provided to universities as a whole rather than to individual students.

There are various different types of funding provided by HEFCE for widening participation and they are generally intended to be used for more general adjustments aimed either at all disabled students or all students with a certain impairment. HEFCE mainstream disability allocation funding, for example, is based upon "the proportion of students that each institution recruits who are in receipt of the DSA" (HEFCE website, 2009) which still means it relies on a medical definition of disability and impairment.

1.6.3 Access to Learning Fund (ALF)

Another source of funding commonly available to home students in England is the Access to Learning Fund (ALF). This fund is designed to help students with everyday course or living costs as well as emergency costs. One of the priority groups that this fund is often used for is disabled students, and it is commonly used to pay for the Educational Psychologist reports that are needed to support applications for DSA if a student has an SpLD (e.g. dyslexia), but can also be used to pay for other items that the DSA is unable to cover (Directgov website, 2009).

1.6.4 International students

International students are not entitled to apply for DSA funding from their LEA or SFE or to grants from ALF. They are generally expected to support themselves, although funding may be available from their home country. Some universities have funds set aside especially for international students that may be able to cover disability related costs. International students may also benefit indirectly from adjustments paid for by HEFCE funding.

1.7 Overview of thesis

This introductory chapter will be followed by six further chapters. In Chapter 2, *Understanding disability theory and research in higher education,* the key theoretical models of disability that are central to this research are established. The research that has been conducted to date in relation to disability in higher education, print disability and the associated area of accessibility is mapped out and the gaps that exist in the literature are explored in relation to why they are worth filling.

In Chapter 3, *Methodology and research methods,* the methodology that was used is described and consideration is given to how it has shaped this research. Discussions explore why qualitative rather than quantitative methods were used, and the three stages of research that were carried out are outlined. Details are also provided of the methods of sampling, data collection and analysis used, and practical and ethical concerns are addressed.

Chapter 3 is followed by three chapters containing the main research findings. In Chapter 4, the question is asked: *How do universities, staff and students understand the concepts of disability and reasonable adjustments?* The 2006 DESs produced by the four universities are examined as well as the accounts of staff and student participants, and the models of disability that are suggested by these are explored. In Chapter 5 the question is asked: *What are the issues involved in making and implementing adjustments?* The various stages of the process of making adjustments from funding to identification and on to implementation are discussed. In this chapter the foundation is also laid for Chapter 6 by beginning to consider how reasonable these adjustments are and how satisfied staff and students are with them.

Chapter 6, *Exploring barriers and adjustments further and understanding staff and student accounts,* develops the issues and themes that emerge from the findings in the previous two chapters in relation to staff and student experiences and explores emergent themes relating to expectation and satisfaction. In Chapter 7, *Conclusion*, the findings and discussion are drawn together in order to summarise what these reveal about universities' responses to SENDA 2001, and to consider how much has changed since its implementation.

1.8 Conclusion

This chapter has introduced the topic of my research, outlined why I am interested in this subject and explained why I chose to use terminology such as 'print disabled' students. It has introduced the research questions that this thesis aims to address and the methods that were used in this research. It has also explored the legislative and policy framework in which this study was conducted and has begun to explore the complexities of concepts such as 'barriers' and 'adjustments'. It has also provided a brief overview of the six chapters to follow.

It is evident from the disability legislation charted in this chapter that universities' responsibilities for meeting the needs of disabled students have greatly increased over the past 15 years. When the DDA 1995 was introduced, it placed greater responsibility on employers and providers of goods and services than on post-16 education providers. The HEFCE report of 1999 highlighted many of the issues that this legislation failed to address and when it was extended by SENDA 2001 this situation was reversed, leaving post-16 education providers with far greater responsibilities than other groups.

SENDA 2001 was not fully implemented until September 2005, and my research began one year later. The aim was to see how much impact SENDA 2001 had had on print disabled students, and to see how well universities had responded to their needs. During my research three new pieces of legislation were introduced: the DDA 1995 and the Equality Acts of 2005 and 2010. Despite this the central responsibilities placed on universities in relation to print disabled students remain largely unchanged. This thesis explores the experiences of print disabled students and the staff who support them to see what progress has been made towards ending disability discrimination and promoting equality.

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2. Understanding disability theory and research in higher education

2.1 Introduction

Having a coherent understanding of what 'disability' means and using a consistent definition of the term was always very important in my research. Chapter 1 introduced some of the theoretical ideas and concepts used in this thesis, and Section 2.2 explores these in more detail.

Many different theories and models of disability have been used in the past, and these have in many ways helped to shape the social model of disability. As will be explained, the original social model can been seen to have its limitations, although a broader understanding of it can eliminate many of these. This model is now commonly used in higher education and all four of the universities studied said it was the model of disability that underpinned their disability policy (see Chapters 3 and 4).

Many studies have looked at issues surrounding disability in general in higher education; Section 2.3 reflects on those that were most influential to this research. Section 2.4 looks at research more specifically focused on underlying impairments that are likely to lead to print disability. These two sections consider the ways in which this body of literature has helped to develop my understanding of the issues, the impact it has had on the research questions asked and methods used. Section 2.5 highlights the gaps that are evident and why it is important that further research, such as this thesis, attempts to fill these.

2.2 Theories of disability

Disability has been thought of in many different ways over the centuries, and even during recent years opinions have changed dramatically. This section outlines some of the theories and models of disability that have been used over the past century and concludes by discussing the way in which the social model of disability is understood in my research.

2.2.1 The medical model (and variations on it)

Throughout most of the twentieth century 'disability' has referred to "'flawed minds' and bodies" (Barnes and Mercer, 2003, p.1), the 'victims' of which were dependent on their family and friends, and ultimately the welfare state. Instead of support in the community, many were segregated in specialised institutions. Disability tended to be viewed as a 'personal tragedy' and 'sufferers' were often seen as a 'social problem' or 'burden'.

The 1960s saw a shift away from the medical model, as campaigners, most of whom were disabled themselves, "redirected attention to the impact of social and environmental barriers, such as inaccessible buildings and transport, discriminatory attitudes and negative cultural stereotypes, in 'disabling' people with impairments" (Barnes and Mercer, 2003, p.1).

The world of academia, however, was slow to respond to this, sticking instead to the traditionalist view of disability as an individual and medical issue:

> The medical model of disability sees the person as the problem and the solution as making the person 'normal'. The medical model leads to the provision of special schools, special transport, sheltered jobs, physiotherapy and speech therapy, charities and benefits.
>
> *Aspis, in Greater London Action on Disability (GLAD), 2000, p.5.*

This traditionalist view is heavily criticised for 'blaming' those with impairments and attempting to:

> ... locate the cause of the problems we face in us and our individual impairments. For as long as these people are able to maintain the idea that it is our bodies that are at fault, the social structure they have created can be protected.
>
> *Davis, 1990, p.3.*

The analyses of health and sickness carried out by many functionalist thinkers, and originally outlined by Talcott Parsons (1951), led to the idea of disability as a kind of 'social deviance'. When people become 'sick' they are temporarily relieved of their 'normal' duties in society until they are 'well' again.

> Society accepts that the sick person cannot get better simply by an 'act of will' and he or she is permitted to withdraw temporarily from 'normal' social roles. In return, the individual must obtain medical confirmation of their condition and follow the recommended treatment, while agreeing the importance of leaving the sick role behind as soon as possible.
>
> *Barnes and Mercer, 2003, p.3.*

Since disabled people are neither 'sick' nor 'well' in the traditional sense - their 'condition' is not 'temporary', and 'treatment' may not be possible - they become social deviants.

Criticism of this classification of social deviance led to the creation of the 'rehabilitation role', which allows for the additional category of 'disabled' to be added to 'sick' and 'well'. This model requires that once people become aware that they have an impairment, they must:

> ... accept it and learn how to live with it. This is achieved, it is argued, through the maximisation of existing abilities. Within this frame of reference individuals with impairments are obligated to assume as many 'normal' functions as quickly as possible. They are not exempt from social expectations or responsibilities but must adapt accordingly. Additionally, they should co-operate with professionals and innovate and ameliorate new methods of rehabilitation.
>
> *Barnes and Oliver, 1993, p.3.*

The suggestion that disabled people must learn to 'adapt', and 'co-operate with professionals' to 'ameliorate' the problems caused by their disability, was condemned by many disabled critics. They argued that it was not the disabled person who should have to change, but the society itself that makes their impairments so disabling.

In his 1990 book, *The Politics of Disablement*, Oliver criticised the theories of disability used by academia as being underpinned by "the personal tragedy theory of disability" (Oliver, 1990, p.1) and argued that:

> ... human beings give meanings to objects in their social world and subsequently orientate their behaviour towards these objects in terms of the meanings given to them. ... As far as disability is concerned, if it is seen as a tragedy, then disabled people will be treated as if they are victims of some tragic happening or circumstance. This treatment will occur not just in everyday interactions but will also be translated into social policies which will attempt to compensate these victims for the tragedies that have befallen them.
>
> *Oliver, 1990, p.2.*

He argued for a "social theory of disability" (Oliver 1990, p. *x*) to replace those dominated by "medical and psychological" (*ibid.*) theories, but felt that until academics stopped seeing the "issue of disability and the experiences of disabled people" as "marginal to both theoretical development and empirical work" (*ibid.*) then such a theory could not be produced. It is possible in Oliver's work to see the outline of what could be seen as a rather radical version of the social model of disability (see Section 2.2.2.3).

2.2.1.1 The medical model interpretation of 'reasonable'

Using the medical model of disability, it is unlikely that the current disability discrimination and equality legislation would have been enacted. If it had, the interpretation of 'reasonable' would be very different. Society would have a reduced responsibility to make adjustments; the responsibility would be placed instead on individual disabled people to make adjustments to better fit within the norm expected of them.

2.2.2 The social model

2.2.2.1 Origins and early development

Years before Oliver's 1990 book, many (mostly non-academic) campaigners had begun to argue that disability was a form of social oppression in the same way as race or ethnicity. In 1976, the UK based Union of the Physically Impaired Against Segregation (UPIAS) put forward the case for viewing disability as a form of social stratification:

> In our view it is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society. Disabled people are therefore an oppressed group in society.
>
> *UPIAS, 1976, p.14.*

Ten years later, the first national survey of disabled people to take place in the United States found that many people supported the assertion that disabled people are "a minority group in the same sense as are blacks and Hispanics" (Harris, 1986, p.114). The main difference, of course, is that whilst it may be possible to eradicate racism simply by ignoring the person's race, ignoring a person's disability completely will not result in equality. Disabled people need their impairments and resultant disabilities to be recognised and societal barriers removed. The attitudinal barriers that disabled people face are, however, highlighted in this thesis as being an important aspect of disability discrimination and inequality, and lessons can be learned from how these have been challenged by other marginalised groups in society.

At about the same time, back in the UK, disability activists were busy establishing the social model of disability - a challenge to the traditional and academic models which focus on supposedly measurable medical effects.

What is central to the social model is the difference between *impairment* and *disability*. This was not a distinction made previously, as up until this point the terms needed to be used interchangeably. UPIAS defines impairment as:

> ... lacking all or part of a limb, or having a defective limb, organ or mechanism of the body.
>
> *UPIAS, 1976, pp.3-4.*

Disability, however, means:

> ... the disadvantage or restriction of an activity caused by a contemporary social organisation which takes little or no account of people who have physical impairments and thus

> excludes them from participation in the mainstream of social activities.
>
> *ibid.*

Whatever definition is used, it is obvious that the terms do in fact mean very different things and are not strictly interchangeable, although they are often used as if they are. So called 'political correctness' is also often used to hide the real problem. For example, The Spastics Society changed its name to Scope in 1994 because the term 'Spastic' (which originally meant 'a person with Cerebral Palsy') had become used as a term of abuse. It can be argued, however, that all that really changed was the name, rather than the general beliefs about people with Cerebral Palsy. This is perhaps why I, along with many others like me, am still happy to refer to myself as 'disabled'. After all, there are many changes that need to take place in society before my impairments are no longer disabling.

The main point emphasised by the social model is that disability itself is a social construction; people with 'impairments' become 'disabled' by the society in which they live. When individuals are born with or develop an impairment, certain assumptions are made about them and what they are capable of. They are ultimately labelled by society as less able or less worthy than those who have not been diagnosed with an impairment. The social model is reliant on the recognition that "discriminatory attitudes, rather than functional impairments, lie at the heart of disability" (Fernie and Henning, 2006, p.25).

Finkelstein, one of the founding members of UPIAS, wrote in 2001 that "at a personal level we may talk about acquiring an impairment being a personal tragedy, but at the social level we should talk about the restrictions that we face are, and should be interpreted as, a crime" (Finkelstein, 2001, p10).

This new model was adopted by many individuals, organisations and research projects and is still widely used today. It seems, however, that Oliver's dream of a 'social theory of disability' has not been wholly realised. He and many others have heavily criticised the way in which the social model has been applied by researchers, describing it as: "a rip-off that has done little, if anything, to confront the social oppression and isolation experienced by disabled people or initiate policies which have made significant improvement in the quality of their lives" (Barnes and Mercer, 2003, p.1).

2.2.2.2 Getting the balance right between disability and impairment

As described above, the general premise of the social model of disability is that there are certain functions and abilities that most humans have which are seen as the 'norm'. Those who function sub-normally for the human species are said to have an impairment and society may turn this impairment into a disability. This means that disability is a social construction that can be deconstructed and in an 'ideal' society, disability would not exist. Critics have argued that what is missing from the social model of disability is the consideration of impairment effects that cannot be blamed on society. For example, pain and fatigue may possibly be minimised in a fully inclusive society but changing society cannot completely ensure that none of its members experience these effects or are disabled by them. A model that blames society for disability and claims that society can and should act to prevent people being disabled, can also be seen to imply that individuals should not seek medical or other interventions to ameliorate the effects of or 'cure' their impairments. Shakespeare and Watson defend the social model, explaining that:

> The social model originally underplayed the importance of impairment in disabled people's lives, in order to develop a strong argument about social structures and social processes. No theory emerges into the world fully formed, and getting the balance right between the experience of impairment and the experience of disability is a continuing endeavour.
>
> *Shakespeare and Watson, 1997, in Barton and Oliver, 1997, p.269.*

They feel that the social model can include issues relating to impairment and suggest that:

> The priority should be social change and barrier removal, as social models of disability have suggested. Yet there is no reason why appropriate action on impairment - and even various forms of impairment prevention - cannot co-exist with

> action to remove disabling environments and practices. People are disabled both by social barriers and by their bodies.
>
> *Shakespeare and Watson, 2002, p.15.*

The model used in my research reflects these ideas about the social model of disability. It attempts to prioritise social barriers and responsibilities, whilst still acknowledging that some impairments can be inherently disabling.

2.2.2.3 "'Repossessing' the social model"

Many other former social model advocates now attempt to go beyond the social model of disability. Finkelstein, a founding member of UPIAS, is unhappy with what its model of disability has become and how it has been used to 'explain' disability. In a 2001 article, he talks of "repossessing the social model", which for him means: "searching for openings in the structures of society where we might effectively contribute with others in the restructuring of society so that it is neither competitive nor disabling for all people" (Finkelstein, 2001, p.5). Like Oliver, he believes in a more radical model or theory of disability which explains how *capitalist* society disables people with impairments and argues that not all societies are disabling. He envisions a "community based profession" where "disabled people and disenchanted professions ... truly work together in creating a more appropriate nationalised service which allies itself with the community and responds to what people want" (Finkelstein, 2001, p.5). An examination of the way in which capitalist society may or may not be particularly disablist is beyond the remit of this thesis. These ideas are still interesting, however, given that cost can be used to justify not making an adjustment. This will be discussed further in the next section.

2.2.2.4 The social model interpretation of 'reasonable'

Adopting the version of the social model of disability as used in my research (see Section 2.2.2.2), 'reasonable' is interpreted in a much more generous way than when the medical model is adopted (see Section 2.2.1.1). The primary agent responsible for disability is not the individual disabled person but a society that does not take their impairments fully into account. Thus the term 'reasonable' would be applied very generously and it is likely that once a barrier has been identified by either a disabled or non-disabled member of society, adjustments must be put in place to overcome this barrier.

2.2.3 Model of disability used by the disability legislation

It is important to consider how far the concepts that underpin the social model are reflected in current disability legislation. The definition of disability used in the Disability Discrimination Act 1995 (DDA 1995) is: "a physical or mental impairment which has a substantial and long-term adverse effect on his ability to carry out normal day-to-day activities" (DDA 1995, s.1(1)). This definition has been criticised for defining disability "within a medical model" (Fuller, Bradley and Healey, 2004, p. 456) as it links the person and their impairment directly to the adverse affect. Taking a more inclusive social model approach would instead lead to a definition that emphasises how society has an adverse effect on people with impairments and so causes them to become disabled.

As was discussed in Chapter 1, the DDA 2005 does recognise the involvement of "environmental factors" (DRC, 2007, pp. 114-5), even if it does not fully accept them as the primary cause of disability. In addition, the mere fact that this legislation exists and places duties and obligations on various institutions and organisations in society to reduce the disabling affects many people experience, show that it does not completely locate the 'problem' within the individual. Thus it can be argued that the disability legislation to date takes a mediatory position between these two models.

2.3 Disability and higher education

This section outlines various studies that explore the issues surrounding disability issues in general in higher education; all of which have helped to inform my own research. The findings and research methods described below have shaped my research in terms of questions asked and methods used. This thesis explores some of the questions that these studies have not adequately addressed and attempts to fill some of the gaps in this literature that this chapter exposes. These gaps are highlighted and discussed further later in this chapter (see Section 2.5).

This section is concerned with studies focused on disabled students as a collective group. The limited literature relating specifically to dyslexia, visual impairment or other impairments that may lead to print disability is discussed later (see Section 2.4).

The studies discussed below were all carried out after SENDA 2001 was first introduced. This is not to say that research carried out prior to this date is not important but as the introduction of this legislation contributed to an overhaul of practice and provision in many universities, pre-SENDA experiences are more difficult to compare with my own research.

2.3.1 Three studies that had the most significant influence on the development of my research

The three studies discussed below greatly influenced my research topic and design, and many of the issues they raised were used as starting points for my own study. They were all carried out between the introduction of SENDA in 2001 and the start of my field work in 2006.

2.3.1.1 Riddell, Tinklin and Wilson: *Disabled students and multiple policy innovations in higher education*

Riddell, Tinklin and Wilson carried out an ESRC funded study of disabled students in further and higher education institutions in Scotland and England between April 2001 and September 2003. This was entitled *Disabled students and multiple policy innovations in higher education* and the authors state that it was designed to utilise the social model of disability. The research methods used include:

> ... reviews of relevant research, policy documents and legislation; interviews with 15 key informants; analysis of official statistics; a survey of further and higher education institutions; and case studies of eight institutions and 50 disabled students.
>
> *Tinklin, Riddell and Wilson, 2004, p.642.*

Of the 50 disabled students, 10 had a visual impairment and 12 had dyslexia (Riddell, Tinklin and Wilson, 2005, pp158-190). This study is clearly more extensive than is possible during a PhD but many similar methods were employed (see Chapter 3).

Their main conclusion (as documented in their final report to ESRC: Riddell, Tinklin and Wilson, 2004) was that whilst there was still a long way to go, institutions had improved their provision for disabled students. Although not all of the institutions fully met the criteria for base level provision, many reported that they were partially meeting them. They found that most now had a "designated disability officer and a senior manager with responsibility for disability issues" (Riddell, Tinklin and Wilson, 2004, p.6); a considerable improvement on the situation described in much previous work. They explained that while most were not "prepared in advance for disabled students" they were nonetheless making "movement away from the reactive end of the continuum" (*ibid.*). As SENDA 2001 brought in the requirement for institutions to make anticipatory adjustments for students, it is pleasing to note that most had started to do this.

Less encouraging was the discovery that: "adjustments to teaching and learning were very difficult to obtain and lecturers were particularly reluctant to provide notes in electronic format prior to lectures" (Riddell, Tinklin and Wilson, 2004, p.23). This is something that many print disabled students require and would seem to be a perfectly reasonable 'reasonable' adjustment. They suggested that making the anticipatory adjustment to provide notes in advance of lectures to all students would mean that a disabled student who required this "would no longer have this 'special need'" (*ibid.*, p. 649) although they recognised that "some disabled students' needs are unique and would be impossible to anticipate, which means that a level of individual assessment and support would still be necessary" (*ibid.*). Given that their research also suggests that: "academic staff felt they were under pressure and were unable to devote time to individual students" (Riddell, Tinklin and Wilson, 2004, p.23), it seems unlikely that they would be able to find the time to produce and provide these materials in advance even if this were to become standard practice. It is concerning that staff find it difficult to devote time to individual students, because disabled students in general, and print disabled students in particular, do often require this so that barriers in the way courses are designed and run can be overcome. Since this study was designed to explore disabled students in general, it did not focus on print disability specifically, so this issue was not explored further in relation to its impact on print disabled students. This is an issue that is considered, however, in my own research and is discussed at numerous points in this thesis.

The authors were concerned that "the privileging of the written word in British higher education, [...] effectively disadvantages significant numbers of students with dyslexia" (Tinklin, Riddell, and Wilson, 2004, p. 654). It can be argued that this is true of all print disabled students, as expectations around the 'quality' and quantity of material to be both read and written have the potential to discriminate against all students who have difficulty accessing standard-format print.

The authors warned that despite SENDA 2001, institutions continued in many ways to take a medical model approach to disability and were still supporting individual students to "access an otherwise inaccessible 'mainstream' system" (Tinklin, Riddell and Wilson, 2004, p.649). This was to some extent due to funding systems that focus on individual support for students, such as DSA, and the existence of specialist student support services for disabled students. Both provided assistance for individual students that was "'extra' to what is viewed as 'normal'" (*ibid.*), and was designed to enable them to "get around or over barriers in the institutional environment" (*ibid.*). They argue that a social model approach "would say that it is the environment that needs to change, in order that barriers to disabled students are tackled and removed" (*ibid.*). They suggest, however, that elements of both may be required.

These ideas are central to my own research and elements of this were introduced in Chapter 1. It can be argued that DSA and other funding often emphasises individual adjustments, and in doing so can reinforce the medical model perspective that disability is an individual rather than a social issue. Clearly what is being argued here is that disability should be bought into the mainstream and the best way to do this is to make the general anticipatory adjustments necessary to overcome attitudinal barriers. The authors were clearly concerned that this was not yet happening and stated that participants felt that: "the kind of culture change required to really make a difference in this area will take a long time" (Riddell, Tinklin and Wilson, 2004, p.24). This is very important in my own research, as although many print disabled students do face barriers that require practical, and often individual, adjustments to be made, the impact of barriers caused by the general culture within institutions and the attitudes of staff should not be underestimated. Indeed, this is a common theme in this thesis.

Their findings about the extent of difficulties students had obtaining adjustments from academic staff are unsettling. Although SENDA 2001 only started to come into effect during the latter part of their data collection phase, universities had had some responsibilities towards disabled students since 1995. As a result it might reasonably be expected that all staff would have been more aware of their responsibilities, even before SENDA 2001 began to extend these. Instead this research suggests that academic staff were not sufficiently well aware of their responsibilities towards disabled students or as fully prepared to support them as required by law. Staff attitudes were emphasised as "a crucial aspect of the teaching and learning experiences for disabled students. The staff experiences that students felt were most important were approachability, helpfulness, flexibility and being supportive" (Fuller *et al*, 2009, p.169). However, their findings suggested that "staff are not sufficiently well-informed about disability legislation or, more importantly, are not confident about how they might perform their duties towards disabled students" (*ibid.* p. 177). These findings emphasis how important the view and actions of staff are to disabled students, and help to justify the rationale behind my own decision to include both staff and students in my study of student experiences.

Riddell, Tinklin and Wilson's research is very closely aligned to the subject of my own research, and some of the issues explored in this thesis were raised as a direct result of their study. There are, however, significant differences between it and my own research. Firstly, their study was a comparison of practice in England and Scotland, whilst the four universities studied in my research were all English. Secondly, and more importantly, the majority of SENDA 2001 came into force in September 2002 but other areas were implemented later. Now that this Act has been fully implemented and further legislation has been introduced, there is clearly scope for a further study to explore what, if any, improvements have been made.

2.3.1.2 Fuller, Healey, Bradley and Hall: Enhancing the quality and outcomes of disabled students' learning in higher education

This ESRC funded study, entitled "Enhancing the quality and outcomes of disabled students' learning in higher education", began in September 2001 as the SENDA legislation was being introduced and implemented.

Fuller, Bradley and Healey carried out the pilot stage of this 18 month study, which involved twenty disabled students at one institution. It had the dual aim to "provide an evidence base for institutional development" and "to give voice to those disabled students who wished to reflect on issues affecting their learning" (Fuller, Bradley and Healey, 2004, p.458). Indeed, the authors pointed out that prior to this study "despite a growth of interest in widening access and participation and in inclusive higher education, the voices of disabled students themselves have hardly been heard" (Fuller, Bradley and Healey, 2004, p.455). These two aims were also very important in designing and writing up my own research (see Chapter 3). Although later studies have sought to provide more outlets for 'the student voice', it is felt that the voices of print disabled students are still not heard often enough.

Although none of their twenty student participants had visual impairments, six had dyslexia and issues relating to access to materials were mentioned several times. For example, one respondent (Teresa), is quoted as saying:

> The state of the notes that you are given - the print is tiny, it's about a size 8 and we're being asked to supply them in size 12 and double spaced and yet it's alright for them to give us size 8, single spaced, solid pages of writing.
>
> *Fuller, Bradley and Healey, 2004, p.460.*

Another respondent (Sophie) said she particularly liked one of her lecturers because "you can ask him straightaway and he'll come up with books and he'll have a reading list and he'll give you the chapters and he'll say 'you'll find it all in there'" (Fuller, Bradley and Healey, 2004, p.461). Therefore, even though their study did not focus on print disability or the barriers disabled students may experience because of the widespread use of standard-format print, the issue of access to materials was clearly one that several respondents were concerned about.

Fuller, Bradley and Healey concluded that:

> Students clearly differed in their willingness to seek support for their impairment, had experienced widely different levels of help from teaching staff and appeared to be very differently placed in terms of accessing information about what was on offer. These differences in experience of provision were not necessarily related to their level of need. Some had experienced examples of good practice and firm support for their learning, while others' experience had been more equivocal.
>
> *Fuller, Bradley and Healey, 2004, pp.456-66.*

It is interesting to see how much student support seeking behaviour and their experiences varied, even though all attended the same institution. Although my research does not explore possible differences between or within institutions, this is borne in mind throughout. The authors' observation that this was 'not necessarily related to their level of need' is something that is very interesting, and given more time could have been explored during my research.

Following the successful pilot research discussed above, Fuller, Healey, Bradley and Hall carried out a larger study which explored some of these early findings. This later study involved sending "a four-page postal questionnaire, based on a mix of multiple-choice questions and short, open-ended questions" (Fuller *et al.*, 2004, p.307) to 593 students who had declared a disability. 173 completed questionnaires were returned and this 29% response rate may seem a little low. The authors explained, however, that it was not possible to send out targeted reminder letters to attempt to increase the response rate as the questionnaires were completed anonymously.

Fuller *et al.* believed it was important for the questionnaire to be as accessible as possible. They produced strict criteria for the formatting of the questionnaire, requiring it to be produced in a minimum of 12 point Arial font printed on light beige paper, choosing to start with factual questions and restricting it to four pages in length (Fuller *et al.*, 2004, p.307). During my research I also took issues of both staff and student access to my research materials very seriously; producing several different accessible formats and making arrangements to allow specific preferred formats to be produced quickly and easily if requested (see Chapter 3). In practice, these were not required but this anticipatory adjustment was something that respondents commended.

Answers to the multiple choice questions contained in the questionnaire created by Fuller *et al.* were analysed using SPSS. Responses to the open-ended questions were analysed by identifying "recurring themes, which are used to illustrate students' experience of the barriers they have encountered in relation to their teaching, learning and assessment at the institution" (Fuller *et al.*, 2004, p.308). This latter type of analysis is very similar to that used to analyse my own interview transcripts and questionnaire responses (see Chapter 3) and allows the findings to more fully reflect my respondents' experiences than using pre-coded themes.

In addition to the research methods used, their findings and conclusions were also very useful. Significant percentages of students reported that they had experienced disability-related barriers and these were broken up into the following areas: "Learning in lectures" (44%), "Other on-campus classes" (22%), Off-campus sessions" (21%) and "Using IT facilities" (17%) (Fuller *et al.*, 2004, p.310.) Some of the findings relating to the 34.5% of students who had dyslexia (*ibid.*) that are particularly pertinent to my research are described below. As only 0.8% of the students in the sample reported themselves as "blind/partially sighted" (*ibid.*), however, this was not an impairment this study focused on in detail.

A quarter of the students who had dyslexia said they had taken this into account when choosing their field of study and tended to choose subjects with the least written work and examinations. These were often those "which had a substantial practical element or which were information technology based so that, for example, voice recognition software could be used" (Fuller *et al.*, 2004, p.308). Nevertheless, as most courses involve lectures many students could not avoid barriers relating to these. Difficulties were most likely to arise when:

> ... lecturers talked too quickly, or removed visual material such as overhead transparencies before the student had time to digest the contents. For many students, listening and writing notes or watching and making notes was a particular difficulty,

> leaving them with dilemmas as to which to concentrate on, and frequently, with poor notes as a result.
>
> *Ibid., p.310.*

Some students who had dyslexia or a visual impairment "found the library daunting because their reading limitations made browsing and finding books difficult" (*ibid.*, p.311) and said that short loan times on books and unhelpful library staff made this worse. Some students experienced problems with IT facilities, mainly due to "the nature of the equipment and its siting" (*ibid.*).

Respondents did give some positive examples of situations where staff had made a positive difference to their learning experiences. Significantly though, students with dyslexia felt that lecturers did not appreciate the barriers they experienced (Fuller *et al.*, 2004, p.314). The authors reported that, in some cases, students felt that some lecturers either contributed to the creation of barriers and/or failed to contribute to them being overcome:

> Other barriers to learning stemmed from what students experienced as lack of co-operation from some lecturers, for example, an unwillingness to allow their lectures to be tape-recorded, lecturers having unrealistic expectations about the amount of new reading that students could reasonably manage during a taught session, or failing to provide user-friendly handouts.
>
> *Ibid., p.311.*

In such cases, the issues clearly arise from lack of understanding and attitudinal barriers. For Fuller *et al.* it was beyond the scope of their study to give lecturers the chance to answer these criticisms. This is, however, something I endeavoured to do in my own research by incorporating the experiences not only of disability service staff but also of other staff who had been involved with supporting print disabled students. This enabled me to explore issues that arose with adjustments with both student and staff respondents. It also allowed staff respondents to address some of the criticisms commonly expressed by students.

Fuller *et al.* highlighted four key issues in relation to supporting disabled students. The first two were "the need for both variety and flexibility in all aspects of teaching and learning" and "a need to ensure quality as well as parity of provision in comparison with non-disabled peers" (Fuller *et al.*, 2004, p.316). The third was that to do this it is necessary to ensure "access to information for both the disabled students themselves and for lecturers" (*ibid.*). The fourth was that "actions and attitudes of staff are manifestly important in themselves and in relation to the other issues highlighted in this study" (*ibid.*). All of these issues were explored in my own research but point four is perhaps the most significant.

Fuller *et al.* also warned that:

> ... unless we recognise the unevenness of understanding of disabled students' needs, and willingness and ability to accommodate to those needs, it would be easy to think that legislation will in itself create, or have created, a higher education environment that can accommodate the education needs of disabled students. This survey has shown that there is a vital need to continue to seek out, listen to and act upon the voices of disabled students in our attempts to make higher education thoroughly inclusive.
>
> *Ibid.*

This is central to the point this thesis is trying to address. Whilst many changes have been made to the disability discrimination and equality legislation, policies and practices, it does take time for attitudes to catch up with these. Clearly this had not happened by the time Fuller *et al.* carried out their research.

2.3.1.3 Healey, Bradley, Fuller and Hall: Listening to students: the experiences of disabled students learning at University

Healey *et al.* carried out a review of four surveys that they had been involved with in order to explore "barriers to learning faced by disabled students in higher education" (Healey *et al.*, 2006, p.32). These four studies were:

1) an institutional survey of disabled students at the University of Gloucestershire in 2001

2) aspects of Fuller, Bradley and Healey's institutional study of disabled students (the pilot study described in Section 2.3.1.2)

3) an institutional survey of *non-disabled* students at the University of Gloucestershire in 2004

4) the GEES (Geography, Earth and Environmental Services) Survey 2003, which included disabled and non-disabled student participants.

In common with my research, Healey *et al.*'s study utilised a version of the social model which emphasises "the reality of lived experience of disabled people" (*ibid.*, p.3).

What is most significant about the surveys reviewed by Healey *et al.* is that they did not only include disabled students. Surveys 1 and 2 involved solely researching disabled students, survey 3 focused solely on non-disabled students and survey 4 looked at all students, both disabled and non-disabled. Time permitting it would have been desirable to include non-disabled students or those with other disabilities in my research in order to contrast their experiences with those of print disabled students.

One of Healey *et al.*'s main findings was that barriers relating to teaching were experienced by between a quarter and a half of participants:

> ... less than half of the participants, and in many cases less than 25% identified disability related barriers in terms of most of the modes of teaching that they experienced [...] The two exceptions were lectures, where close to 50% of participants in [the studies] identified barriers, and independent fieldwork (e.g. undertaking a dissertation) where 43% of GEES disabled students acknowledged barriers. [...] The nature of the difficulties varied but included issues involving attendance, note taking, participation, confidence, concentration, and the longer time it takes them to complete tasks.
>
> *Healey et al., 2006, p.4.*

Of these issues, 'notetaking' and the 'longer time it takes them to complete tasks' are perhaps those most relevant to print disabled students but the main difficulty that might be expected of print disabled students - namely difficulty accessing audio-visual materials such as handouts, Microsoft PowerPoint slides and writing on boards - is not mentioned.

Barriers relating to teaching and assessment were shown to be significant. A third to two-thirds of participants experienced barriers in terms of assessments:

> About a third of the disabled students in the institutional surveys identified barriers with examinations and coursework, whilst this rose to almost two-thirds among the GEES students. [...] The nature of the difficulties covered a wide range of factors including concentration, tiredness, misreading, structuring, and the length of time taken.
>
> *Healey et al., 2006, p.4.*

Again, 'misreading' and 'the length of time taken' are likely to be problems faced by print disabled students. Access to materials such as examination papers, books and articles are not mentioned. This is perhaps because the majority of print disabled students have visual impairments and, as was reported above, survey 2 contained only one such participant. Given the relatively small number of students with visual impairments in higher education (see Chapter 3) it is likely that the other surveys also contained only small numbers of these. Although much larger numbers of student participants had dyslexia, not all of these would be considered to be print disabled using the definition used by my research. It is therefore reasonable to assume that Healey *et al.* were relying on data that included only a very small number of print disabled students. My research included explorations of barriers to teaching and assessment but also to self-directed study; the findings related to these can be found in Chapters 5 and 6.

Healey *et al.* conclude that:

> ... in the long run, the main beneficiaries of disability legislation and the need to make suitable adjustments in advance are the non-disabled students, because many of the adjustments, such as well-prepared handouts, instructions given in writing as well as verbally, notes put on-line, and variety and flexibility in

> forms of assessment, are simply good teaching and learning practices which benefit all students.
>
> *Healey et al., 2006, p.6.*

It is unclear whether the authors are suggesting that non-disabled students benefit at the same time as disabled ones, a reason often given for making higher education inclusive regardless of the proportion of disabled students who take it up, or whether they feel that non-disabled students benefit *more* than disabled ones. Either way it is clear that whilst this may be true of the anticipatory adjustments made for disabled students in general, it is argued that it may not always be true of the types of adjustments made for many print disabled students. For example, it is possible to suggest a minimum door width and maximum ramp slope that will allow access for all wheelchair users but it is not possible to suggest a single format that will allow access for all print disabled students. The barriers print disabled students face in terms of accessing materials needed in lectures and for assessments are not considered by Healey *et al.*, and there is a noticeable absence of the voices of students with visual impairments in the informational boxes that accompany this article. It is therefore suggested that print disabled students, particularly those with visual impairments, may need a lot more support than is suggested by the Healey *et al.* article. The practical adjustments they require may need to be responsive rather than anticipatory in order to take their individual needs into account, and as a result may benefit individual print disabled students rather than disabled or non-disabled students as a whole.

2.3.2 Other important themes in the wider literature

2.3.2.1 The aspirations of disabled young people

A study conducted by Burchardt (2005) supported by the Joseph Rowntree Foundation, aimed to compare the lives of disabled and non-disabled young people. Although this was not possible in my own research, this approach, which was also taken by one of the surveys reviewed by Healey *et al.* (see Section 2.3.1.3), is a very interesting one. The main part of Burchardt's research was based on data from the 1970 British Cohort Study (BCS70), which surveyed those born in 1970 at ages 16 and 26, and the Youth Cohort Studies (YCS), which contains information about those born in

1982-85 surveyed at ages 16-19. This secondary quantitative data was complemented by seven in-depth qualitative interviews with disabled young people.

This study revealed that disabled and non-disabled 16 year olds had similar aspirations: roughly 60% wanted to progress to post-16 education, and a third of disabled young people and a quarter of non-disabled young people aspired to professional occupations. The study found, however, that disability was a barrier:

> ... controlling for other characteristics such as parental education, young people who become disabled between the ages of 16 and 26, and those who are disabled at both ages, have lower educational attainment relative to their aspirations than do their non-disabled counterparts.
>
> *Burchardt, 2005, p.xi.*

Four of the disabled young people interviewed had experience of higher education:

> One woman had to give up her first attempt at a degree because the campus was 'irremediably inaccessible'. Two had spent time campaigning to improve the disability services on offer - of considerable benefit to later generations of students, and potentially useful experience, but nevertheless a distraction from studying. Three of the four mentioned aspects of their courses that were inaccessible, often as a result of inflexibility in mode of teaching or examination. On the other hand, all four had enjoyed their time at university overall.
>
> *Burchardt, 2005, p.31.*

What is interesting is that whilst they all highlighted problems with their university experience, all still said they had enjoyed their time there. The potential differences between students' expectations, perceptions and evaluations of their time at university were not completely unexpected discoveries for me, given my own experiences.

Burchardt found that of those who aspired to higher education, the majority of disabled young people did gain a degree but the proportion of non-disabled young people who did so was greater. Of those who did not expect to go onto higher education, a higher proportion of disabled than non-disabled young people did so. Disabled young people who were disabled at both 16 and 26 were "more likely to do less well than they had hoped... Two fifths (41%) fell below their initial level of aspiration compared to 35% of young people disabled at neither age" (Burchardt, 2005, p.35).

All this has an impact on my own research, which by its nature was only able to explore the barriers faced by those who *did* make it to university and were still there when my study took place. Those who did not enter university or dropped out before my fieldwork began, as with those who did not wish to talk about their experiences, were all beyond my reach. If told, their stories are likely to reveal even more about the barriers print disabled students face than do those that are successfully elicited.

Madriaga (2007) conducted research supported by UK Aim Higher South Yorkshire, which involved gathering the life histories of 21 disabled students who had "successfully made the transition into higher education" (Madriaga, 2007, p.402). Some of these students' parents or guardians, tutors and support workers were also interviewed. Sixteen of these students had dyslexia, three were wheelchair users, three had unseen disabilities, two had epilepsy and one had both diabetes and dyslexia. Madriaga's report does not specify what the unseen disabilities were so it is impossible to know for sure whether any of these three students had visual impairments but it is unlikely since this is not generally classed as an unseen disability. Some of the 16 students who had dyslexia, however, may well have experienced some degree of print disability. Nevertheless this study clearly could not have contained a significant number of print disabled students.

Perhaps the most important finding was that prior school experience affected students' aspirations. The students, as well as their parents and their higher education tutors, were generally disappointed with their pre-16 schooling and this often had a negative impact on their perception of higher education:

> Tutors (in many instances) did not take positive steps to ensure that disabled students acquired equal access to learning. Moreover, tutors did not envision student participants excelling academically and pursuing higher education. The action or

> inaction of school tutors has impacted on the attitudes and confidence of the participants' pursuit of higher education.
>
> *Madriaga, 2007, pp.403-4.*

In addition to their poor experiences in compulsory education, some students also experienced disablism and discrimination at further education level too, and this often continued into higher education. Unfortunately, the research revealed that "disappointment in university lecturers mirrored sentiments expressed about school and further education tutors" (Madriaga, 2007, p.408). The students tended to view disability as an individual rather than a social issue (*ibid.* p.409) whereas Madriaga concluded that their experiences in higher education were a reflection of general attitudes about disability prevalent in all areas of society:

> ... the evidence has to be understood as a reflection of wider societal attitudes and processes. It was not only in schools, further education colleges and higher education institutions where disabled students confronted disablist attitudes and were hesitant to disclose. It also existed outside the education arena, such as in their workplace.
>
> *Ibid.*

These conclusions were taken into account when designing my own research project. Not only were student perceptions of the attitudinal and other barriers they faced, and their perceptions of the adjustments they received, explored but these were analysed in light of the models of disability evident in their accounts (see Chapter 4). How this affects their interpretations of what is a reasonable adjustment and the impact it has on their satisfaction levels are considered in Chapters 5 and 6.

2.3.2.2 The impact of disability on attainment

Richardson (2009) used data provided by the Higher Education Statistics Agency (HESA) to examine the impact of disability on the degree levels awarded to students who graduated from first degrees during the 2004-5 academic year. Only home students studying at UK institutions of higher education were included and students awarded degrees from the Open University were excluded due to differences in the way this institution records disability status. By their nature, the statistics Richardson used were only able to include figures relating to students who had disclosed a disability. He suggests, however, that "there is no evidence that there exist large numbers of students with undisclosed disabilities who might require additional support in their studies" (Richardson, 2009, p.125). The validity of this statement clearly depends on the interpretation placed on the phrase 'large numbers', as it is commonly recognised that the statistics under-represent the number of disabled students in higher education. In recognition of the fact that not all disabled students decide to disclose their impairments, my own research relied on students' self-reporting of their own difficulties accessing standard-format print. This still required them to disclose their impairments, at least to me, and so my sample naturally excluded any students who were not comfortable with this.

Richardson notes that "simply at a descriptive level, disablement plays a statistically significant (although fairly minor) role in predicting academic attainment" (Richardson, 2009, p.131). In reference to the entry qualifications provided as part of the HESA data, he suggests that "the attainment of students with disabilities in *secondary* education is poorer than the attainment of students with no disabilities" (*ibid.*, p.130). His statistical analysis of degree levels attained suggests that:

> Disability explained only 0.1% of the variation in attainment... Graduates with dyslexia and graduates with multiple disabilities were less likely to obtain good degrees than graduates with no known disability, but this was mainly due to the confounded effects of demographic and institutional variables.
>
> *Ibid., p.123.*

He explains that students who have dyslexia were more likely to be men, have lower entry qualifications and were less likely to be studying at Russell Group institutions (*ibid.*, p.134). He suggests that it was these factors, rather than their diagnosis of dyslexia, that lowered their chances of getting a good degree. He concludes that:

> ... disablement per se does not play a signification role in predicting whether an individual student obtains a good degree: provided that they receive appropriate support, students with

> disabilities are as likely to obtain good degrees as are students with no known disability.
>
> *Richardson, 2009, p.134.*

This article is based on quantitative data that does not record the level or suitability of support received. It is probably true that without 'appropriate support' many disabled students would achieve far lower grades and many would not be able to study at all. An exploration of the appropriateness of support was clearly beyond the remit of Richardson's study but it is one of the aspects that was considered in my own research.

2.3.2.3 Extra work for students

Goode (2007) explored provision at one university and suggested that in some cases there was a big gap between policy and practice that resulted in disabled students having to deal with more issues than their non-disabled peers:

> Policy development in this university was recognised as a 'beacon of good practice', but practice lagged behind in a number of respects. Interviewees were expending enough energy making their own personal adjustments to university life as students with a disability, without having also to 'manage' their access to learning and teaching. As one student commented: 'These aren't issues other students have to deal with'.
>
> *Goode, 2007, p.47.*

Examples are given throughout Chapter 5 of this thesis of the extra work that students said they had to do and their annoyance with the fact that these are not things most students have to deal with. Although this article was published after my field work was completed, it is interesting to see that this study also raised similar issues to those discussed in this thesis.

2.3.2.4 Exploring 'support'

Jacklin and Robinson examined the academic and welfare support received by students, both disabled and non-disabled, at one university department. Their research data suggested that 'support' could be divided into three general categories:

> These were: (1) material resources; (2) guidance, direction, advice or information; and (3) encouragement or 'being in the same boat'.
>
> *Jacklin and Robinson, 2007, p.117.*

The support that they referred to as 'material resources' is similar to my starting point in this research. My student respondents were selected on the basis of needing support to access materials, and interviews explored both practical and attitudinal barriers and the adjustments made to overcome these. As I do, both Jacklin and Goode use the word 'support' in terms of material resources to describe a range of things: "either people (e.g., notetaker, support worker or personal tutor), equipment (e.g., tape recorder or lap-top), or a service (e.g., car parking spaces or extended library borrowing)" (Jacklin and Robinson, 2007, p.117).

2.3.3 Useful information about research methods

2.3.3.1 Methods of categorising universities

Riddell, Tinklin, and Wilson (2004) classified the universities they studied as pre-1992 or post-1992, although one was a colleague of further and higher education that did not fit into either of these two categories. Their analysis showed that, "differences between pre-92 universities and other institutions tended to lie in the areas of general policy making, such as widening access and the impact of the RAE, rather than in their policy and provision for disabled students" (Tinklin, Riddell, and Wilson, 2004, pp. 655-6). This suggests that university type may not have a large impact on the experiences of disabled students.

Due to the small number of universities included in my study (four), it was felt that analysing data according to university type would be unreliable and do little to assist interpretation of the data. Instead the main reason for attempting to classify the four universities was to provide useful descriptors for the reader, without compromising anonymity by providing too many unique features. To do this, a system using a larger number of categories was sought and that used by Richardson suited the universities studied very well.

Richardson classifies UK higher education institutions into five categories:

> ... the 'Russell Group' (i.e. the group of research-intensive universities established before 1992), other pre-1992 universities, post-1992 universities (mainly former polytechnics acquired agree-awarding powers after 1992), specialist institutions (e.g. colleges of agriculture, art, medicine or music) and colleges of higher education.
>
> *Richardson, 2009, p.131.*

Using data provided by the Higher Education Statistics Agency (HESA) about students who graduated at the end of the 2004/5 academic year, Richardson calculates the average percentage of disabled students who graduated from the five different types of institution. Table 2.1 shows a selection of his findings in relation to students who were 'blind/partially sighted' or had 'dyslexia' as well as to the total number of disabled students ('all categories'). This table clearly shows that specialist institutions have by far the highest number of disabled students, and that Russell Group and other pre-1992 universities have the lowest. In Chapter 3 these figures are compared to those of the four universities that took part in my research.

Table 2.1: the percentage of disabled students graduating from Richardson's five types of higher education institution in 2004/5.

	Russell Group	**Pre-1992 universities**	**Post-1992 universities**	**Specialist institutions**	**Colleges of higher education**
Dyslexia	3.2	3.5	4.1	10.2	5.6
Blind/partially sighted	0.1	0.2	0.1	0.2	0.2
All categories	6.1	7.4	7.5	15.1	9.7

2.3.3.2 Dissemination

In response to SENDA 2001, many universities created research groups to look into their existing levels of provision for disabled students. Two examples of research groups in universities are the M1/M69 Staff Development Network in the Midlands (Herrington, 2002) and the South West Academic Network for Disability Support (SWANDS) (Waterfield and West, 2002). These two groups, as well as many others like them, produced a "short publication intended for academic staff, disability specialists and staff development personnel" (Herrington, 2002, p.1) and "a guidance resource for faculty staff in the form of a self-auditing tool for individuals and departments" (Waterfield and West, 2002, p.1) respectively. Although both of these pieces of research included student interviews and case studies, neither produced information specifically designed to be read by students. This means that although students were included in the research, they were not necessarily so readily included in the presentation of the findings. This thesis itself is unlikely to be read by my student - or even staff - respondents (although all respondents have been invited to request a copy) so other methods of disseminating have been, and will continue to be, used (as discussed in Chapter 3). Some of these will be specifically targeted at the student respondents and their peers.

2.4 Print disability and accessibility

The two most common underlying impairments experienced by print disabled students are dyslexia and visual impairment. Whilst they have the common effect of causing difficulty reading standard-format print, and may have many similarities in terms of the adjustments required or made, there are also a lot of differences between them. This section explores the nature of these impairments, as well adjustments that may be needed for students with them. The similarities and differences are explored to justify my grouping together of the experiences of students with these impairments under the heading of print disability. This section also considers the studies that have been carried out which focused on one or more of these impairments and literature relating to the production of accessible and alternative format materials.

2.4.1 Dyslexia

The term dyslexia is used, in Britain at least, to describe "a range of specific learning difficulties [SpLDs] related to underlying differences in processing sound, visual stimuli, symbols and movement" (Cottrell, 2003, p.121). Not everyone considers the 'D' in SpLD to stand for the same thing (see Chapter 4) but it is perhaps most commonly used to stand for 'specific learning *difficulties*' (as used above) and is generally used to indicate that a person does not find learning in general to be difficult, but that certain aspects of it are particularly challenging. Since dyslexia is the most common and the most well known SpLD, many people use the terms interchangeably or simply use the term dyslexia to refer to all SpLDs (see for example Cottrell, 2003).

In terms of being a possible underlying cause of print disability, dyslexia may make reading text more difficult. Although the "higher cognitive skills which characterise university study, such as reasoning, interpreting, understanding, creating and synthesizing are not directly affected" (Cottrell, 2003, p.122), dyslexia can still have a significant impact on students:

> Performance on higher level tasks may be indirectly affected if, for example, individuals cannot gain access to course material because they cannot process text by eye. In such a case, the dyslexic person is in a similar position to a partially sighted or blind person.
>
> *Ibid.*

What is most notable here in terms of my own research is the parallel drawn between the difficulties experienced by students with visual impairments and those with dyslexia.

Whilst visual impairments can be either be present at birth or acquired later, the British Dyslexia Association (BDA) explains that dyslexia is thought to be something an individual is born with:

> It is likely to be present at birth and to be lifelong in its effects. It is characterised by difficulties with phonological processing, rapid naming, working memory, processing speed, and the automatic development of skills that may not match up to an individual's other cognitive abilities.
>
> *BDA website, 2009.*

That BDA feel the need to highlight that dyslexia is characterised by the difference between cognitive ability and literary skills is particularly important. It seems unlikely that the same fact would need to be emphasised if the site was discussing visual impairment. It does seem, however, that dyslexia is not given the same status as visual impairment, despite having a very similar impact. For example, many newspaper reports reveal that some people dispute that dyslexia exists, feel that it can be corrected by 'proper' education or effort, believe that children will 'grow out of it', of feel that many of people are incorrectly diagnosed with having dyslexia (see for example Blair, 2007; Garner, 2009). Partially sighted people, for example, may sometimes feel that their personal level of sight is misunderstood (see for example, Roy, 2003) but it is felt that medical diagnoses of visual impairment are unlikely to be disputed or challenged to this degree. In this respect, dyslexia can be seen as very different to visual impairment but dyslexia is well recognised in the UK and students with dyslexia are protected under SENDA 2001 in the same way as those with visual impairments.

Riddick suggests that, as with other impairments, the social model can be used to explain the disabling effects of dyslexia. She argues that:

> The impairments underlying dyslexia have only become a major difficulty because of the move towards mass literacy and the consequent negative connotations attached to being 'illiterate'. Because mass literacy was attendant on mass schooling the notions of being 'educated' and being 'literate' have become inextricably bound together in many European cultures.
>
> *Riddick, 2001, p223.*

The issue is, however, perhaps more pertinent in the UK as the phonetic irregularities of the English language disproportionally affect those with dyslexia. Riddick describes one 13 year old boy who had dyslexia who "commented on his frustration at being told by teachers that he must 'try harder' to spell correctly. He pointed out that they wouldn't tell the child with partial sight in his class that he must 'try harder' to see" (*ibid.* p.230). The use of the concept of 'print disability' in my own research was designed to enable the experiences of visually impaired students to be considered alongside those of students who have dyslexia and other impairments who experience similar difficulties accessing standard-format print. It was not intended to directly compare or contrast the experiences of one group versus those of another but at times it was obvious that differences did exist (see Chapter 6).

Pollak (2005) outlines how a diagnosis of dyslexia can have an impact on how people feel about themselves and the educational experiences they have had. How dyslexia (or other causes of print disability) may affect students in terms of their emotional well-being or identity was not a central focus of my research, although these issues did occasionally come up during the interviews. Pollak also made reference to some of the problems that students who have dyslexia face. Examples include the extra time reading may take (Pollak, 2005, p.91), difficulty with notetaking in lectures (*ibid.,* p.95), and problems with assessments, particularly examinations (*ibid.,* p.97). This advance knowledge of potential problems assisted my understanding of experiences related by student respondents.

The information about possible adjustments that may assist students who have dyslexia also increased my understanding of the issues and possible solutions. A University of Nottingham guide to inclusive teaching strategies for students with dyslexia also describes common adjustments. These include: one-to-one study skills sessions; computers and assistive technology; extended library loans (University of Nottingham, 2006a, p.2); "copies of lecture notes, preferably in advance" (*ibid.,* p.3) and taped rather than written materials (*ibid.*). They suggest that universities may need to provide "note-takers, readers and library assistants for the small number of dyslexic students for whom this is necessary" (*ibid., p.2*) and allow alternative examination arrangements such as "the provision of extra reading and/or writing time or the use of a PC or a scribe" (*ibid.,* p.4). They also recommend that lecturers "read aloud material from the board and from handouts and transparencies." (*ibid., p.3*) and "set essay and assignment titles early to allow students to organize their time" (*ibid.*). In common with other literature in Section 2.3, this document emphasises that "teaching strategies useful for dyslexics may be useful for everyone" (*ibid.,* p.2) and advised academic staff to "try to understand and act upon the requirements of a dyslexic student [as] this is one of the most supportive strategies you can adopt" (*ibid.*). This information about the common types of adjustments and recommendations to academics allowed interview questions to be more targeted and so facilitated the exploration of the impact of adjustments.

Taylor and Carter recognize that some people are wary about making 'reasonable' adjustments for students who have dyslexia:

> ... while it may be comparatively straightforward to make appropriate adjustments for those students with a physical

> disability, it is more difficult and even controversial to make similar adjustments for students who have a 'learning difficulty'. That is particularly so when that difficulty manifests itself with literacy; in our society to be literate is not only a sign of our education (and historically of class) but, in an academic environment, it is also through literacy that we make our ideas known and share our understanding.
>
> *Taylor and Carter, date unknown, http://www.nottingham.ac.uk /academicsupport/adjustments/rationale.html.*

They suggest that adjustments may be needed to written examinations because: "under these conditions [students who have dyslexia] cannot use their normal technological aids nor adopt the extensive drafting and redrafting strategies they would use for assessed coursework" (*ibid.*). They also suggest that some students who have dyslexia may have slower reading and/or writing speeds, and they may need to "re-read the questions (or any textual materials provided) frequently to check that words have been accurately comprehended" (*ibid.*) and so they need extra time in which to do this. Since students who have dyslexia often have particular difficulty with spelling and grammar they suggested that students should not be penalized for making mistakes with these in examinations. They explain that when this adjustment was first introduced at the University of Nottingham, it was criticised by some academics who feared this would mean students who have dyslexia are "treated leniently [...] and given that they already have the added leniency of additional time [they might be] disadvantaging non-dyslexic students" (*ibid.*). Taylor and Carter argue, however, that is not the case as "in examinations dyslexic students are already greatly disadvantaged by being stripped of their usual technological support" (*ibid.*). Some departments did not feel it was appropriate to make this adjustment in their subject area, perhaps because doing so would leave students unprepared for later careers. In such cases Taylor and Carter advised that departments should:

> ... ask themselves whether it is possible not to penalise spelling and grammar errors in the unreal situation of the examination that is so unlike the real world in which the ex-student will be required to operate. And if the answer is still no, then they should firstly ensure that their policy is transparent to students

> and secondly seek to ensure that they make reasonable adjustments in other areas.
>
> *Ibid.*

The similar West Virginia University guide to teaching science-based students with 'learning disabilities' including dyslexia makes additional recommendations about adjustments that may be necessary. These include advice to academics to: "provide clear photocopies of your notes and overhead transparencies, if the student benefits from such strategies" (West Virginia University, 2005a, http://www.as.wvu.edu/~scidis/learning.html), "allow students to record sessions" (*ibid.*), "announce readings as well as assignments well in advance" (*ibid.*), "make reading lists of required readings available early" (*ibid.*), allow alternative assessments, and grant "time extensions on exams and written assignments when there are significant demands on reading and writing skills" (*ibid.*). Obviously this document was produced by an American university governed by different legislation to universities in the UK but the recommendations build on the adjustments suggested in the other literature in this section.

2.4.2 Visual impairment

For the purposes of this research 'visual impairment' refers to any difficulty a student has in seeing that is not correctable by glasses. This term is not limited to students registered or registerable as blind/severely sight-impaired or partially-sighted/sight-impaired. Visual impairment is generally caused by a defect in the eye or the optic nerve and this can be used to distinguish it from other causes of difficulty reading standard-format print. As the term 'visual impairment' covers a wide range of degrees of sight loss, a further distinction is drawn in this thesis. Students with visual impairments who have enough useful vision to read print of some description are referred to as having 'low vision' and those who do not are described as 'blind'.

Roy provides a useful and enlightening summary of the needs of students with visual impairments in higher education. He writes knowledgeably about the range of adjustments that can be made, offers guidelines for "providing accessible information to students with visual impairments" (Roy, 2003, p.81) and uses a number of case studies to illustrate his points. Sections are included on "accessible teaching and learning strategies" (*ibid.* p.79), "The impact of access technology" (*ibid.,* p.87), and even "The Psychological effects of visual impairment" (*ibid.,* p.88).

The particular adjustments he recommends include provision of "material in advance of a lecture or tutorial in the student's preferred format" (*ibid.,* p.80.) and the granting of "additional time, if required, for assignments and examinations/assessments" (*ibid.,* p.81).

Significantly, Roy explains that *even if* appropriate adjustments are made, students with visual impairments will struggle to work to the same timescale as their peers:

> It is very likely that a student with a visual impairment will still need more time to study, even if the right level of support is offered. Tasks involving access technology are likely to take longer if comparisons are made with sighted students. The students need to manage their time very effectively. Students with a visual impairment also have additional responsibilities that sighted students need not bother with. Sighted readers and any other assistance organized through Disabled Students' Allowance have to be worked with in constructive ways. This involves meetings, planning, ensuring others' assistance is helpful, and the maintenance of a supportive network.
>
> *Ibid., p.85.*

It is therefore obvious that when appropriate adjustments are *not* made, the time and effort required by students with visual impairments (and by implication other print disabled students too) to succeed in their studies will be drastically increased. The possibility of extra work and effort being required of print disabled students and the effect this may have on their satisfaction with adjustments is considered in Chapter 6.

Roy therefore provides useful examples of the types of adjustments that may be required in order for students with visual impairments (and by implication other print disabled students too) to overcome the barriers that they face. This work is now seven years old, however, and assistive technologies, as well as legislative requirements, have moved on a great deal since 2003. Also, although Roy gives an account of adjustments that are commonly made for students, he does not analyse them critically, which my research has tried to do.

Gray and Morley Wilkins were concerned about the difficulty of producing tactile and large print diagrams in a "timely manner" (Gray and Morley Wilkins, 2005, p.32). They carried out research to establish which diagrams would be most useful for higher education psychology courses. Buying such prepared diagrams would be an example of a 'reasonable' adjustment but these have not yet been marketed on a large scale and none of the universities studied were using these. This project is useful to my own research, however, as it confirms the delays that can occur when producing alternative formats.

Lewin-Jones and Hodgeson (2004) investigated 'Differentiation strategies relating to the inclusion of a student with a severe visual impairment in higher education (modern foreign languages)'. This is a case study of adjustments made for one student, written by two teachers who had worked with this student. Whilst its scope was very limited, it provides useful information about the approaches that can be used to make modern foreign language courses accessible to those with visual impairments. It confirms the difficulties that can result and suggests adjustments that may benefit print disabled students studying foreign languages.

The RNIB (Royal National Institute for the Blind) carries out much research into issues that affect people with visual impairments in society in general and some aspects of this are of relevance to students in higher education. The focus tends to be on accessing information - titles include: 'The Information Needs of People with visual impairments' (Moore, 2000), 'Overdue' (RNIB, 2003) and 'Written Off' (RNIB, 2004). The latter two reports contain quotes from people with visual impairments about how they feel when "denied the right to read" (RNIB, 2004, p.2). Whilst the full research reports are not necessarily designed to be read by their entire membership, easy to read summaries were produced (in a number of formats) and aimed at those likely to be affected by their findings. This method of dissemination may be useful with regards to my research and I plan to produce similar summaries and make them available in alternative formats.

The University of Nottingham guide to inclusive strategies for teaching students with visual impairments is similar to the one produced in regard to students with dyslexia (see Section 2.4.1). This emphasised the difference between students who are blind and use predominately non-visual methods of accessing text and students who have low vision and generally need to use magnification or large print to access materials.

Typical adjustments described in this guide include: assistive technology such as screenreaders (University of Nottingham, 2006b, *ibid.* p.2); "personal readers, library browsers or notetakers" (*ibid.*); "research or library assistants" (*ibid.*); "extended library loans" (*ibid.*); reading lists and "copies of overhead materials" in advance (*ibid.,* p.3) and materials in alternative formats, e.g. large print, Braille, electronic or audio format (*ibid.,* p.5). They also recommend that academics "express written information verbally, e.g. when viewing overheads or writing on the board" (*ibid.,* p.4). Examination arrangements may include: "examination papers produced in alternative formats"; "provision of extra reading and/or writing time [in examinations] (this varies but may be as much as double time)" (*ibid.,* p.6); use of scribes or readers; use of computer and assistive technology; and "sitting the exam in a separate room" (*ibid.*). As with the similar document they produced on dyslexia (see Section 2.4.1) they point out that students may have to expend extra time and effort to complete their studies (*ibid.* p.5), and adjustments made for visually impaired students may in fact benefit all students (*ibid.,* p.4).

West Virginia University also produced guidelines for teaching students who have visual impairments. They suggest that the impact of visual impairment depends on a number of things:

> The extent of visual disability depends upon the physical sensory impairment of the students' eyes, the age of the student at the onset of visual impairment, and the way in which that impairment occurred. Vision may also fluctuate or may be influenced by factors such as inappropriate lighting, light glare, or fatigue. Hence there is no "typical" vision impaired student.
>
> *West Virginia University, 2005b,*
> *http://www.as.wvu.edu/~scidis/vision.html*

They suggest that academic staff may need to: "describe, in detail, pertinent visual occurrences of the learning activities" (*ibid.*); "describe and tactually familiarize the student to the classroom, laboratory, equipment, supplies, materials, field sites, *etc.*" (*ibid.*); "give verbal notice of room changes, special meetings, or assignments" and "use a sighted narrator or descriptive video (preferably the latter) to describe aspects of videos or laser disks" (*ibid.*). They suggest that: "visual material needs to be accompanied by a verbal description" (*ibid.*); students should be allowed to tape record group discussions and extra time in should be granted in examinations if requested. These adjustments are further examples of those that are likely to be detailed by student respondents and again helped to shape the questions asked.

2.4.3 Similarities and differences

As can be seen above, students who have dyslexia often experience similar difficulties to students with visual impairments when it comes to accessing textual materials in standard-format print. Students with visual impairments may also have difficulty with other visual materials such as videos, still images, graphs, diagrams and tables, as may some students who have dyslexia. The general similarities and differences between these two types of impairment are outlined in Table 2.1.

Table 2.1: General similarities and differences between dyslexia and visual impairment.

Possible problem	**Does this affect students with...**	
	Visual impairments?	**Dyslexia?**
Reading speed may be slower	Yes	Yes
Writing speed may be slower	Yes	Yes
Studying generally more time-consuming	Yes	Yes
Possible adjustments	**For students with...**	
	Visual impairments?	**Dyslexia?**
Library assistant	Yes	Yes
Lecture materials (e.g. notes, handouts, OHTs/PowerPoint slides) in advance	Yes	Yes
Reading lists in advance	Yes	Yes
Alternative formats for textual materials:	Yes	Yes
- Large print or clear print	Yes	Yes

Possible adjustments (continued)	**For students with...**	
	Visual impairments?	**Dyslexia?**
- Particular colour combinations	Yes	Yes
- Increased line spacing	Yes	Yes
- Electronic format	Yes	Yes
- Audio format	Yes	Yes
- Braille	Yes	No
Other visual materials in alternative formats	Yes	Possibly
Magnification aids	Yes	Unlikely but possibly helpful in some cases
Material on board read aloud	Yes	Yes
New and difficult spoken words spelled out	Yes	Yes
Lectures and other spoken 'materials' recorded	Yes	Yes
Use of computers and assistive technology (particularly in exams)	Yes	Yes
Scribe (particularly in exams)	Yes	Yes
Reader (particularly in exams)	Yes	Yes
Not penalized for spelling and grammar errors	Possibly	Yes
Lecturer's writing should be legible	Yes	Yes
Study skills sessions	Possibly	Yes

2.4.4 Guidance on producing accessible materials

Guidelines produced by RNIB on producing Clear Print and by the British Dyslexia Association (BDA) on producing 'dyslexia friendly' text were seen by Evett and Brown as having significant overlaps and these enabled them to produce specifications for creating what they called "Clear Text for All" (Evett and Brown, 2005, taken from title of article) and guidelines for producing websites that were easy for people with dyslexia to read:

> Using the specifications should produce clear text for both dyslexic and visually impaired readers. It should improve readability for all. The text specifications plus additional recommendations from the BDA are considered with respect to an existing set of web site guidelines for dyslexic readers to

> produce an enhanced set of guidelines compatible with both. These guidelines are recommended to be followed as standard, both for their benefits to visually impaired and dyslexic readers, promoting accessibility for these groups, and their potential to improve accessibility for all.
>
> *Evett and Brown, 2005, p.453.*

The general recommendations they make include using sans serif font that is size 12 or above, using bold rather than underlining or italics, using 1.5 or double line spacing (leading) and ensuring good contrast between text and background colours.

This article also gives guidelines on making websites accessible and some of the comments it makes also relate to software as it explains how screenreaders work:

> Screen readers are designed to read out text. Early screen readers dealt with text-based interfaces, and used a fairly simple process of taking ASCII codes from the display buffer and sending them directly to a voice synthesiser. Braille displays operated in a similar way, with, of course, a different output. This process was significantly complicated by the advent of GUIs [Graphical User Interfaces]; an off-screen model of the textual information was now required, and speech generated as and when the user requested. As screen displays become ever more diverse, the lack of understanding of the page by screen readers and Braille displays creates numerous problems. They do not know what is important and what is not and therefore output everything.
>
> *Evett and Brown, 2005, p.462.*

With many pieces of software it is the use of GUIs that causes difficulties for screenreader users. Other potential problems are discussed in Chapter 5.

The recommendations that Evett and Brown make are designed not only to produce Clear Text for those with visual impairments and dyslexia but also to improve readability for everyone. This is interesting as it shows that it is possible to produce documents that are accessible to wide audiences.

Although these guidelines are useful for those making anticipatory adjustments and *may* assist those making responsive adjustments (the type which many print disabled students require), it must be remembered that every print disabled student is different and will require a different alternative format that may differ drastically from these general guidelines. For example, the author prefers text to be justified whereas Evett and Brown (and many others) suggest that only left-aligned text should be used for those who are print disabled.

Whereas Evett and Brown provided general guidelines on accessibility, the advice offered by JISC TechDis expands upon this, not only creating guidelines on *what* makes materials more accessible, but providing guides on *how* to create accessible materials and *why* this is important. JISC TechDis is an advisory body funded by the Joint Information Systems Committee (JISC) and its aim is to "support the education sector in achieving greater accessibility and inclusion by stimulating innovation and providing expert advice and guidance on disability and technology" (JISC TechDis website, 2009).

To this end JISC TechDis has produced an 'Accessibility Essentials' series of four guides to producing accessible documents, presentations and PDF files. 'Accessibility Essentials: Making Electronic Documents More Readable' contains information about "font colours and styles", "enlarging text" and "navigating documents" (JISC TechDis, 2006a, p.1). It covers various electronic platforms, including "Microsoft® Word", "Microsoft® Internet Explorer", "Mozilla® Firefox" and "Adobe® PDF" (*ibid.,* p.1). 'Accessibility Essentials 2: Writing Accessible Electronic Documents with Microsoft® Word' covers areas such as "Authoring Accessible Documents" and "Accessibility and Usability Gains for Authors" (JISC TechDis, 2006b, p.1), not only explaining how to produce accessible e-text that uses styles and headings but why you should do so. 'Accessibility Essentials 3: Creating Accessible Presentations' explains how to use Microsoft® PowerPoint as accessibly as possible, not only in designing presentations but in delivering them accessibly too (JISC TechDis, 2007a). 'Accessibility Essentials 4: Making the most of PDFs' goes over "The Benefits and Barriers of PDFs", "Producing Accessible PDFs" and "User Personalisation of Adobe® Acrobat Reader" (JISC TechDis, 2007b, p.1).

The content of these four booklets is available to view for free on the JISC TechDis website (http://www.techdis.ac.uk) and can also be purchased in hardcopy. They are very useful guides that show that it need not be difficult to produce accessible materials and outline how and why this should be done.

RNIB's pack entitled 'See It Right: making information accessible for people with sight problems' contains similar guidance targeted at producing accessible information for people with visual impairments. It covers various areas including "Printed Information", "Audio Information", "Tactile Information" (RNIB, 2006, p.4), "Electronic Information" and "Signage" (*ibid.*, p.5). Significant areas in which this pack adds to the JISC TechDis guides is the provision of audio and tactile materials, and accessible signage. The section on Braille reads:

> Braille is particularly good for straightforward documents that can be read in a left to right manner, line by line. [...] More complex texts, such as mathematics, foreign languages and tables require more expertise to produce in Braille.
>
> *RNIB, 2006, p.71.*

This pack is available to buy but other useful information is available for free on the RNIB website (http://www.rnib.org.uk) including a summary of the Clear Print guidelines contained in the See It Right pack (http://rnib.org.uk/xpedio/groups/public/documents/publicWebsite/public_seeitright.hcsp) and guidelines on web accessibility (http://rnib.org.uk/xpedio/groups/public/documents/code/public_rnib_008789.hcsp).

This information shows that a lot of work has gone into producing guidelines that explain how to produce different types of materials in alternative formats. These guidelines are available to universities and the practicalities of transcribing a sheet of text into an alternative format is not the primary focus of this thesis. My research has focused instead on why students still experience difficulties obtaining materials in alternative formats and what barriers stand in the way of transcribing documents in good time.

2.5 What gaps are there in the literature and why are they worth filling?

Research relating specifically to dyslexia, visual impairment and other underlying causes of print disability is limited. The experiences of students with visual impairments or dyslexia have been studied to some degree (for example: Roy, 2003; Cottrell, 2003; Riddick, 2001) but these studies are less relevant now that SENDA 2001 has been fully implemented. Guidelines produced outlining the types of adjustments that may be useful (e.g. The University of Nottingham, 2006a and 2006b) and describing how to produce alternative formats (e.g. JISC TechDis, 2006a, 2006b, 2007a and 2007b) are useful but do not describe in detail the difficulties that may arise in implementing these adjustments.

None of the three studies that formed the starting point for my own research, Tinklin, Riddell and Wilson (2004), Fuller et al. (2004) and Healey et al. (2006), included any significant number of print disabled students. Given the difficulties print disabled students face in terms of accessing materials at the core of their studies, it can be argued that the problems these three studies identified may be more acute for print disabled students. The issues they identified relate predominately to academic staff, including: barriers caused by the teaching methods used (Fuller et al., 2004, p.310) and difficulties obtaining adjustments to these (Tinklin, Riddell and Wilson, 2004, p.23); inability to devote time to individual students (*ibid.*); lack of appreciation of the barriers faced by dyslexic students (Fuller et al., 2004, p.314) and difficulties with assessments (Healey et al., 2006, p.4.). In addition they identified barriers to access to library and IT services (Fuller et al., 2004, p.311), both of which contain essential materials for any student.

These three studies provided very useful insights into problems that affect disabled students in general but it was beyond their remit to discuss whether any particular impairment groups experienced more significant problems than others. It is likely that the issues they describe as particularly problematic are even more acute for print disabled students but to date no research has explored this important area.

In addition, their research suggests that universities were not generally prepared in advance for disabled students (Tinklin, Riddell and Wilson, 2004, p.6) even though anticipatory adjustments have the potential to benefit all students (Healey *et al.*, 2006, p.6). What is missing from the debate is research that considers whether anticipatory adjustments are as effective for all impairment groups. There is a danger that current research will lead to the belief that print disabled students benefit from these to the same degree but the nature of the barriers they face suggest that this may not actually be the case.

There is clearly a need for research to address issues relating to barriers faced by print disabled students and problems relating to the implementation of reasonable adjustments to overcome these. Without it the experiences of print disabled students are unlikely to be addressed unless legal action is taken. In response to Riddell, Tinklin and Wilson's observation that "the kind of culture change required to really make a difference in this area will take a long time" (Riddell, Tinklin and Wilson, 2004, p.24), this thesis will consider what issues still remain and explore how much students' experiences have changed.

2.6 Conclusion

It has been shown in this chapter that there has been a general move away from the medical model of disability that focused disability within the self, to employing a social model which highlights the ways in which society turns an impairment into an disability. Legislation designed to prevent disability discrimination and promote disability equality in higher education has not fully adopted the social model but does accept that universities have a responsibility to reduce the barriers people with impairments face. As a result, universities are obliged to make reasonable adjustments, although the way in which the term 'reasonable' is interpreted may be less generous than if the social model of disability was fully endorsed.

Research carried out since SENDA 2001 was introduced has shown that disabled students still face significant barriers and that they, and the staff who support them, experience many difficulties implementing these adjustments. This is the case despite widespread dissemination of good practice guidelines relating to the types of adjustments that may be required.

The literature to date has either considered disabled students as a homogenous group or has separated them out into impairment-based groups. It is suggested that it is instead more useful to group students according to the type of disablism they experience and as a result this thesis focuses on students for whom standard-format print is a barrier: print disabled students. The widespread use of standard-format print in society is exacerbated by the importance placed by higher education on the written word. Thus print disabled students are arguably the most disadvantaged group within the wider category of disabled students. It is suggested that by considering the experiences of this group of students, important information can be discovered about how much things have improved for disabled students since the introduction of SENDA 2001.

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3. Methodology and research methods

3.1 Introduction

My position as a disabled researcher admittedly influenced the methodology I applied in this research. I feel a personal and moral obligation to adhere, as far as possible, to the Emancipatory Research Paradigm, and my research methods were designed with this in mind. My aim was to carry out research that might be, even if only in a small way, useful to the groups who took part - print disabled students and the staff who support them. It has always been my intention not only to document perspectives and perceptions in an academic thesis, but to seek other ways to publish and present my findings in order to reach those who may be in a position to improve and shape future adjustments. Indeed it was this commitment that convinced many participants, both staff and student, to volunteer their time.

The research methods chosen for this research were also influenced by my own status as a disabled person, since the social model of disability is the primary method of understanding disability employed by disabled people researching disability. As a disabled person myself, the research methods chosen were also limited to those that did not present immoveable barriers given my own impairments, although in practice very few changes or adjustments were needed.

3.2 Methodology

3.2.1 The Emancipatory Research Paradigm

My personal experience of disability meant that it was very important to me to allow the disabled students in particular to talk about their experiences and feelings about them. I intended to use these accounts not only to produce a thesis for academic benefit but to produce findings that could be used by disabled students and disability practitioners to improve the experiences of others.

An important influencing factor in the methodology of this research was, therefore, the belief I share with many other members of the disability movement that any research should aim to be 'emancipatory' in nature. The Emancipatory Research Paradigm , is seen as the 'Gold Standard' for research carried out within the discipline of disability studies (Barnes, 2003, p.6). It is primarily characterised by: reliance on the social model of disability; the inclusion of disabled people (both as researchers and research subjects); the goal of challenging rather than accepting 'social oppression'; and the accessible dissemination of research findings. Thus research is used as a tool not just to explain discrimination and oppression, but to challenge it.

In contrast with traditional investigative approaches, the emancipatory disability research agenda warrants the generation and production of meaningful and accessible knowledge about the various structures – economic, political, cultural and environmental – that create and sustain the multiple deprivations encountered by the overwhelming majority of disabled people and their families. The integrating theme running through social model thinking and emancipatory disability research is its transformative aim:

> ... namely, barrier removal and the promotion of disabled people's individual and collective empowerment. From this perspective the role of the researcher is to help facilitate these goals through the research process.
>
> *Barnes, 2003, p.6.*

Whilst this research was, of course, designed to result in the production of this academic thesis, it is hoped that it will also have some practical outcomes for the participants. To facilitate this, participants were provided with a list of sources of further information should they wish to find out more about, for example, the legislation that governs the 'reasonable' adjustments they receive, as well as a list of contacts should they feel that they need help or advice as a result of any of the issues raised during the interviews. It was hoped that providing this information would encourage participants to find out more about their rights, and how they can be enforced, thus empowering them to challenge the discrimination and oppression they experience for themselves.

Findings were disseminated in a number of ways and although these included academic conferences, the focus was on student and practitioner conferences/workshops and articles written for student and practitioner audiences. The findings were presented in ways that were easily accessible to disabled students and the staff that support them, and were designed to encourage discussion about the ways in which the experiences of disabled students can be improved by removing barriers and improving adjustments.

This research has, therefore, aimed to be emancipatory in a number of ways. Firstly it was designed and implemented by a disabled person. Secondly it included disabled participants. Thirdly, and most importantly, it aimed to critically examine the experiences and perspectives of the disabled students who took part. In addition to this thesis, it was decided to disseminate the findings as widely as possible so as to reach those who have the power to either remove the barriers or improve the adjustments. It is also hoped that this research has helped the disabled students involved to think more critically about the barriers they face and the adjustments they receive. To encourage this, the research findings were made as accessible as possible - meaning both understandable and available in a variety of formats.

An unforeseen advantage of adopting this methodology was that many participants who were initially wary of taking part in a primarily academic study, agreed to take part once I explained that the findings would also be used in a less academic context as the starting point for discussions at student and practitioner conferences, journals and newsletters. A spin off project looking at the more practical ways of supporting maths students with visual impairments also developed and is already having a positive impact on students at several universities.

Whilst the goal of carrying out emancipatory research is a worthy one, it is also a difficult burden to bear, especially within the constraints of a PhD. Whilst I recognise that this study was primarily an academic one, the findings were also used in ways that were intended to enable disabled students and the staff who support them to improve the experiences of future disabled students. I share Oliver's hope that: "when disabled people have emancipated themselves (as one day they surely will), I hope [my work] will be seen as having made a small contribution to that emancipation" (Oliver, 1997, p.47).

3.2.2 The importance of staff and student perceptions of their experiences

The main aim of this research was to explore staff and student perceptions of barriers and adjustments, with a particular emphasis on the perspectives of disabled students. Interestingly, many of the staff who were involved in supporting disabled students were disabled themselves and many had undertaken or were undertaking university study. A higher percentage of disabled people were therefore involved in this research than may be obvious at first glance.

These perceptions needed to be elicited and then interpreted as sensitively as possible to avoid the common criticism that "research about people with disabilities has sometimes alienated them by failing to reflect their own perspective" (IRLTHE, 2005, p.2). By choosing to carry out this research, I obviously felt that I was (potentially at least) capable of exploring the experiences of staff and students in a way that would sensitively reflect their perspectives. I am a student myself (or else I would not be writing this thesis) and, as explained in the Preface, I am also disabled. This means that the epistemology used by this research hinged on the concept that the 'knower is also the known'.

This is not to say that a non-student or a non-disabled person could not possibly have carried out this research, simply that a person with these attributes who has been through the experience of receiving 'reasonable' adjustments may be better placed to understand the experiences of other disabled students. Much has been made of the difficulties of carrying out anthropological studies of unfamiliar people and cultures, and, much in the same way that feminists criticise 'malestream' studies of sociology as failing to recognise their experiences, some non-disabled researchers can easily overlook or misinterpret the experiences of disabled people simply because they are different from their own.

In addition, there were possible methodological reasons for preferring a disabled interviewer to carry out interviews with disabled participants. Much of the research previously mentioned in this chapter was instituted and conducted by establishment figures, i.e. academics, university committees and staff. It was felt that discussions were likely to be more frank and open if the participants felt that they could relate to or have something in common with me as a researcher. The idea that disabled people share a common identity in this way, and the assumption that I would therefore be seen as an 'insider', was obviously problematic and subject to debate. In addition, if I was seen as an insider by the disabled students I interviewed, then would this mean that I was automatically seen as an 'outsider' by the other group I wished to study, the academic and support staff who made and/or decided upon the adjustments to be made for print disabled students? In the end, this was not a problem as although the students did generally treat me as an insider, so did the staff. I had become fairly well known within my field of research and had a lot of previous contact with staff involved in implementing SENDA, both in my everyday studies, through attendance at conferences, courses and workshops, through involvement in setting up a working group to look at issues relating to disability and mathematics. As well as through regular contributions to various JISCmail mailing lists, including the Disability-Research Discussion List and Dis-Forum, a 'discussion list for disabled students and their support staff'. Towards the end of this study I also started part-time employment as a disability adviser and become directly involved with supporting other disabled students. All this served me very well during the research process and the writing of this thesis.

In most research more mature, non-disabled, researchers interview students, whereas I am closer in age to the average student and I am print disabled. I also believe that my familiarity with the subject helped me to interpret the information that was received from participants and turn it into something that they could see as a useful and relevant reflection of their experiences. I, as a disabled student, have investigated the experiences of other disabled students with a view to improving the experience of future generations of higher education entrants. To the best of my knowledge this has not been done before.

There were, of course, a number of potential problems relating to my own position as a disabled researcher, researching students with similar impairments to my own. Firstly, on reflection, it is possible that too many things were 'assumed' rather than explained during interviews. For example, the interviewees often assumed that I knew what a notetaker did and so did not explain in detail what their notetaker did for them. Since I assumed that I knew what a notetaker did, I did not always ask what the particular student's notetaker did for them. Despite this, I think that my position as a disabled researcher was generally a benefit rather than a disadvantage.

3.2.3 The need for reflexivity

Andrews emphasises how important she found it to remain reflexive whilst conducting her own research into disabled people who volunteer, as she herself is a wheelchair user who volunteers:

> The need for reflexivity was particularly relevant when interviewing people living with similar impairments to my own, as I needed to be aware of the impact that my own thoughts, feelings and emotions could have on both the interview situation and on my 'self' as a person.
>
> *Andrews, 2005, p.208.*

Similarly, Vernon, a disabled Black woman researching disabled Black women, explains how:

> ... reflexivity, the examination of the ways in which the researcher's own social identity and values affect the data gathered and the picture of the social world produced, is a critical exercise for those researching the experience of oppression, particularly to insure the avoidance of colluding with the established hegemony.
>
> *Vernon, in Barnes and Mercer, 1997, p.159.*

Both accounts clearly emphasise the potential difficulty of researching disabled people when you are disabled yourself. As Andrews points out, this is particularly acute when an individual's impairments are similar to your own.

When I began this research I was very much aware of the need to remain reflexive, and although I did not keep a 'research diary' in the traditional sense, I did keep notes of the ideas I explored with my husband, peers and supervisors, and took every opportunity to reflect on my own feelings in relation to these. I also relied heavily on the personal support available to me to try to ensure that I maintained at a safe 'emotional distance' from my research and the issues it raised. Despite this, I did find that during the latter stage of this research it could be emotionally very difficult to write about other students' experiences, particularly the more negative ones. I was, at times, forced to revisit difficult moments in my own student journey, particularly those experienced during this research. I hope to one day publish my an account of my experiences in order to provide useful reflections for other disabled researchers, in the same way that Andrews and Vernon have done.

3.3 Qualitative versus quantitative methods

This research was designed to explore perspectives and perceptions, and this naturally led to the adoption of qualitative methods. A quantitative approach may have allowed views to be elicited from more participants, and as a result the findings could be argued to be more easily generalisable. A social survey, for example, could have been as easily sent to ten participants as 100, and findings that rely on a sampled of 100 people are naturally more generalisable than findings that are based on smaller samples. The purpose of this research, however, fits more closely with qualitative approaches designed to "describe and analyse the culture and behaviour of humans and their groups from the point of view of those being studied" (Bryman, 1998, p.46).

Semi-structured interviews were chosen in order to elicit rich reflective accounts which explore participants' perceptions and perspectives. Whilst recognising that no research method can hope to discover "truths which are unmediated by the situated use of forms of representation" (Silverman, 1993, p.197), the researcher's own experience of disability, both as a disabled student and as a member of staff supporting disabled students, was used to interpret and analyse these accounts.

It is recognised that these accounts may in some senses be 'constructions' rather than 'excavations' (Mason, in May, 2002, p.226). Participants may not have thought about their feelings in relation to the adjustments they make or receive prior to the interview situation, and the questions that are asked, as well as the way in which they are asked, may influence the answers given.

Denzin argues that sociological interviews should not be an "occasion for one person to do all the talking while the other only asks questions and listens" (Denzin, 1989, p. 103). The interview style adopted during my research was informal and I was not unwilling to share my own experiences. I was aware that at some point during the majority of interviews, participants would relate an experience similar to my own, and I decided in advance that I would tell them this, and share my own experiences as much as they seemed to be comfortable with. The idea behind this was that by confirming the 'validity' of the experiences they were relating or the feelings they were sharing, they might feel encouraged to open up further. This worked very well, and during several interviews the respondent and I openly shared our life experiences and discussions were further fuelled by the similarities and differences between them.

Another reason for choosing qualitative interview methods rather than quantitative ones was the desire for participants to be the chance to talk about their experiences in their own words. The Emancipatory Research Paradigm (see Section 3.2.1) emphasises that disabled people should be involved in any research about them, and I was keen to facilitate this as far as possible. Disabled students were encouraged to talk about their experiences and explore their feelings about them. Their 'voices' are included in this thesis, but were also more thoroughly represented in dissemination activities carried out between 2006 and 2010.

3.4 Research questions

The research question, and the three parts in can be broken down into to, are discussed in more depth in Chapter 1. They are reproduced here to provide a convenient opportunity to refer back to these.

The research question at the heart of this thesis is:

> What barriers do print disabled students face, what reasonable adjustments are made to overcome these barriers, and how do staff and students feel about these barriers and adjustments?

This question was broken down into the following parts:

a) Which models of disability do universities, staff and students utilise?
b) What adjustments are made for print disabled students and in what situations are they necessary?
c) What problems arise with the implementation of adjustments?

d) How reasonable are the adjustments made?
e) How satisfied are staff and students with these adjustments?
f) How far do the expectations raised by particular models of disability affect staff and student perceptions of adjustments?

3.5 Overview of research process

3.5.1 Preliminary stage: exploration of University documents

This stage was intended to provide background information about the four universities in terms of: 1) service provision and adjustments each claimed to provide, and, 2) perspectives on disability and reasonable adjustments. This information was gathered from their Disability Equality Statements (DES), policy documents and other materials publicly available on their websites or on request. Whilst this was primarily intended as preparation for later stages of my research, some of the findings are included in this thesis.

The information about service provision and adjustments is summarised in Section 3.6.1.4 which also provides a rough comparison of these. This data was collected simply by looking for references to each and collating these for each university.

Chapter 4 considers the perspectives and understandings of the concepts of disability and reasonable adjustments suggested by each University in their 2006 DES. This information was obtained by looking for answers to three questions:

1) What is disability?
2) Who or what is responsible for 'causing' disability?
3) Whose responsibility is it to prevent or reduce the barriers that lead to disability?

3.5.2 Stage one: interviews

This research involved both print disabled students, and members of staff who supported such students, at four different universities. Initially it was expected that three universities would take part, but due to the low number of students who came forward a fourth university was added. The universities were all very different in terms of size and student population, and some were more research focused, whilst others had a greater emphasis on teaching.

The students were all full-time, a mixture of undergraduates and postgraduates, but they all self-defined as print disabled and felt they required "reasonable' adjustments' under the SENDA legislation. After the interviews had taken place it became apparent that one participant with dyslexia did not actually need or want adjustments to standard format print. As he did not fit the original eligibility criteria his responses were not analysed or used in any way. Staff participants came from three broad categories (as described in Section 3.6.3) although no attempts were made to determine who took part.

Semi-structured qualitative interviews were carried out, and these were designed to be as informal and flexible as possible. An brief 'interview guide' was produced which outlined areas to be covered. For staff interviews, several different outlines were produced depending on the type of work participants were involved in. A few examples are given in Appendix B. It was hoped that participants would be happy to talk quite widely and in detail about their experiences, and the outlines were designed purely to remind me of areas that I would like to cover if possible.

As discussed in Section 3.3 there were several reasons for choosing qualitative research methods. Although semi-structured interviews were eventually chosen, observation methods had been considered. It was decided, however, that they were less appropriate, and, given the researcher's visual impairment, impractical. Students receive adjustments throughout their time at university, and the process often begins even before they arrive. There is no real 'event' which could be studied, and although the idea of 'shadowing' staff or students for a day or so at a time was considered, it was not felt that this would provide much useful information as it would not be possible to gain the 'whole picture' from such a small snapshot. Instead staff and students were asked to provide a personal account of their experiences, and questions were asked which prompted them to make judgements about the adjustments they made or received.

Semi-structured interviews were chosen as opposed to fully structured ones because it was hoped that participants would talk as freely as possible about their experiences rather than feeling constrained by interviewer questioning. In addition, it was not possible to produce a comprehensive interview schedule before the event since it was impossible to know enough about the participants and their experiences in advance to predict the questions that would need to be asked. The interviews could not be entirely unstructured since there was a certain amount of information that needed to be obtained in order to ensure useful comparisons could be made between participants. For example, what was the respondent's preferred format for materials, or, did the respondent receive a Disabled Students' Allowance?

Although it was thought preferable to use in-depth, semi-structured, face-to-face, interviews as the primary method of obtaining qualitative data, the pilot research revealed a number of potential practical problems with this. As a result, participants who, for whatever reason, were unable or unwilling to be interviewed in this way were encouraged to communicate their views via another method, e.g. via email.

The initial plan was to carry out 8-10 interviews in each university, 3-4 with staff and 5-6 with students (however, see below). This reflected the intention to include staff experiences in this research, but to maintain a focus on the student experience. It was anticipated that each interview would last for about 60-90 minutes, but interviews would be allowed to go on for longer if it seemed appropriate to do so.

The reality was that despite adding a fourth university, there were considerable difficulties recruiting students to the study. Although it is believed that a large number of students were informed about the study - at least 12 in each university were informed via email and posters and leaflets were designed to attract many more - a relatively small number took part. Four students took part from University A, four from University B, only two from University C and four from University D. The response rates from University C are particularly worrying. The study did not attract any students who had dyslexia from this university even though emails were sent out from the disability service. The study also failed to bring forward any departmental disability officers from this university. It is not known why the response rate from this university was so low. The response rates from the other universities were pleasing, so perhaps the predicted number of eligible students from University C was overestimated, especially as the alternative formats manager from that university said that he only produced alternative formats for a few students.

The student interviews also tended to be shorter than had been anticipated as many students had received only a small number of adjustments. A few students also failed to engage with questions designed to explore their feelings about adjustments, and in these cases interviews were short and focused on 'factual' information.

There was an abundance of staff members wanting to take part in the research (with the notable exception of Departmental Disability Officers - DDOs - from University C as noted above), so between five and ten were interviewed from each university rather than the three or four that had been expected. These interviews tended to be longer than the student interviews, perhaps because one member of staff had often been involved with several print disabled students.

3.5.3 Stage two – electronic questions

Due to the low numbers of students who took part in the first stage of this research, and the resulting imbalance in the staff-student ratio, it was decided to add a second stage. An email was sent out to students and support staff via the JISCmail Dis-Forum mailing list (see Dis-Forum website) asking print disabled students to consider taking part in the research using their preferred method of either email or instant messaging. Seven students responded, six via email and one via instant messaging. They were then asked to provide open-ended answers to 20 questions provided electronically, using their preferred electronic method. This information obviously did not need transcribing, but was analysed in the same way outlined for the interview transcripts (see Section 3.9). Students who took part in this stage of the research were asked to indicate their consent electronically and for ease of labelling have been marked as attending University E.

3.6 Sampling and final samples

3.6.1 Universities

Four universities were selected from those the researcher already had contact with to make identifying a gatekeeper easier. These were located in various parts of the UK and offered different experiences to very different student bodies. For ease these are labelled as A, B, C and D.

Before the field research got fully underway in early 2007, some background information was collected about the four universities (as detailed in Section 3.5.1. This information was taken from each University's 2006 Disability Equality Statement (DES) and the universities' websites as available in late 2006 and early 2007. This information was later supplemented with HESA statistics from the 2006/7 academic year, the period during which the majority of the interviews took place.

This information was designed to provide a basic understanding of disability provision at the four universities, and also helped to familiarise me with the job and service titles and descriptions that they used. The following section presents an anonymised summary of the information collected and is included to provide a brief overview of the universities studied.

3.6.1.1 Type of institution

Whilst it was felt that some way of classifying institutions would be necessary, it was difficult to decide how to do this. Tinklin, Riddell and Wilson classified the UK higher education institutions they researched as either "pre-1992 universities" or "post-1992 universities and other higher education institutions" (Tinklin, Riddell and Wilson, 2004, p.644). Their rationale for doing this was:

> ... based on the notion that older universities have different histories in terms of governance, funding and degree-awarding powers, and it is, therefore, interesting to assess whether their responses were different to those of other institutions.
>
> *Ibid.*

My original intention was to look for a spread of pre- and post-1992 institutions, but in practice the sample was self-selecting due to limited numbers of institutions wishing to be involved.

Richardson (2009) classified UK higher education institutions into five categories as described in Chapter 2. This classification system has been adopted in order to classify and describe the four universities studied. University A is a Russell Group university, University B is a post-1992 university and University D is another (i.e. non-Russell Group) pre-1992 university. University C is harder to classify. Like University D, it is a pre-1992 university and not a member of the Russell Group. In common with many specialist institutions it has a particular focus on one area of excellence (details of this area have not been included as they would make this institution more identifiable) although it does provide a large range of other subjects too. It also has a much higher proportion of disabled students (see Section 3.6.1.2) than the other universities studied, which was revealed in Chapter 2 to be a common feature of specialist institutions. Given this, University C has been classified, rather tentatively, as a specialist institution.

3.6.1.2 Number of disabled students

In their DES, the four universities indicated how many disabled students they had, but did not necessarily use the same measure. University A stated that "... in 2004-05, the statistics indicate that the number of students declaring a disability at registration increased slightly from 5.2% to 5.7% of the student population". This is not necessarily the same as the number of *registered students* who disclosed a disability as they may have disclosed *after* registration.

University B said "for the 2006 year of entry, disabled applicants accounted for 5% of all applications to [University B], a ratio that is consistent with sector-level trends reported by UCAS". Since this refers to disabled *applicants*, not the number of disabled students *accepted* or *registered* this is difficult to compare with the other universities.

University C claimed to have around 1,200 disabled students in 2005/6 but did not give this as a percentage of the overall student population or say at which point this data was collected. From University C's website it was gleaned that in 2005/6 this university had around 14,800 students. This means that in 2005/6, approximately 8% of the students at this university were disabled. This is much higher than the other two universities but, as was explained above, this university may be expected to have a higher percentage of disabled students than the others due to its status as a specialist institution.

At University D, "5% of applicants declare an impairment and/or identify as a disabled person". This figure is taken from "analysis of admissions data for 2006 entry". Again, this refers to the number of students disclosing disability on their applications not the number accepted or registered students who may have disclosed later.

Data from the Higher Education Statistics Agency (HESA), rounded according to their guidelines for use (see Appendix G) was used to find out more about the students at the four universities in the 2006/07 academic year. Since this data is provided to HESA by universities themselves it is difficult to know how or at which point it was measured by each; it might relate to the number of students who declared a disability at registration, or the number that had disclosed by another point in this academic year.

Table 3.1 shows the proportions of students with any type of disability ("all categories"), as well as those most likely to be print disabled: those who were "blind/partially sighted" (referred to in this study having low vision or being blind) and those with "Dyslexia".

Table 3.1: Numbers and percentages of disabled students at the four UK universities studied in 2006/7.

University	**Disability category**	**No**	**%**
A	Dyslexia	970	2.89%
	Blind/partially sighted	65	0.19%
	All categories	1410	4.3
B	Dyslexia	615	2.57%
	Blind/partially sighted	30	0.13%
	All categories	1015	4.2
C	Dyslexia	635	3.73%
	Blind/partially sighted	20	0.12%
	All categories	1095	6.4
D	Dyslexia	295	2.07%
	Blind/partially sighted	15	0.11%
	All categories	515	3.6

These percentages are lower than those provided by the universities in their own literature (see above) and are also lower than percentages suggested by the statistics provided by Richardson for each category of institution. This is not unexpected as there are a number of differences between the various statistics that have been presented. The statistics for the four universities studied relate to the number of disabled students *studying* in 2006/07, whilst the ones used by Richardson relate those who *graduated* in 2004/5. Both of these rely on HESA statistics, whereas the statistics which the universities use in their DES varied, and as was noted above, some universities referred to the number of disabled *applicants* in their literature not the number disabled *students*.

Using this data, it can be seen that University C still has the highest number of disabled students of all the universities studied. As this figure is primarily elevated by this University's larger percentage of students with dyslexia this would fit with the explanation given above.

3.6.1.3 Model of Disability

It is perhaps useful to point out that all four of the universities claimed in their DES to adhere to the social model of disability. The following quotations are provided to show the language used by the four universities:

> The University subscribes to the social model of disability and accepts that disability is a social phenomenon.
>
> *(University A DES)*

> ... the university will fully recognise the social model of disability when planning the actions required to deliver the commitments set out in the Disability Equality Scheme.
>
> *(University B DES)*

> Approaches to inclusion will be encouraged through the use of the social model of disability.
>
> *(University C DES)*

> Our Disability Equality Scheme is informed by the social model of disability
>
> *(University D DES)*

The way in which their DES reflect an understanding of the social model is discussed further in Chapter 4.

3.6.1.4 Services and provision

University A said of its current provision: "whilst we believe that in many areas we have a good track record in providing accessible education and services, we recognise that more can be done to improve inclusivity across the whole university" (DES). It claimed to clarify:

> ... the University's approach to eliminating discrimination and in particular emphasises the need to focus attention on the elimination of the barriers to inclusion that create disability. These barriers may vary from the infrastructural (buildings, transport), through to the informational (access to text, electronic media), the organisational (inflexible policies and procedures) and the social (stereotyping and prejudice).
>
> *(University A DES)*

For the purposes of this research, it is perhaps social and informational barriers that are most important. University B claimed to have "a long standing track record of, and commitment to, widening participation for people who may have historically found progression to higher education provision difficult. This includes disabled students" (University B DES). University C did not make any claims about its current provision, and this is just one example of how different the DES were.

University D said that it was "committed to ... giving high priority to the recognition of disability equality, ... promoting disability equality principles and practices internally as well as to external partners and the local community, [and] recognising and valuing positively the disabled community and their culture" but did not explicitly talk about its opinion of its current provision.

The services outlined in the four universities' DES were fairly similar but a few main differences were noted. University D did not mention having a dedicated disability policy unit or officer, University B did not mention having Departmental Disability Officers (DDOs) (and it was confirmed in the interviews that it did not have these), and universities B and D were the only two that stated that they had a group for/of disabled students. These potential differences between institutions had also been noted in other research:

> The majority of institutions had committees with a particular remit for disability issues, but these did not tend to have direct control over a budget. Institutions varied on whether they had staff representatives in each department/college with responsibility for disability issues - this tended to be a Scottish rather than an English practice - and whether they had disabled student representatives on relevant committees. However, they did tend to consult the student representative body and individual disabled students about disability-related developments. Consultation with disabled students' groups varied, but such groups did not exist in all institutions.
>
> *Tinklin, Riddell and Wilson, 2004, p. 647.*

Table 3.2: the main similarities and differences in services and provision between the four universities.

Service or provision	**A**	**B**	**C**	**D**
A 'disability service'	Yes	Yes	Yes	Yes
An 'alternative formats service' or similar	Yes	Yes	Yes	Yes
A 'disability policy unit/officer'	Yes	Yes	Yes	Not mentioned
A group for/of disabled students	Not mentioned	Yes	Not mentioned	Yes
An 'assessment centre'	Yes	Yes	Yes	Yes
'Disability support workers'	Yes	Yes	Yes	Yes

3.6.2 Students

If a large number of students came forward to take part in the research, it had been decided to select participants to reflect a number of characteristics so as to ensure the sample included men and women, undergraduates and postgraduates, as well as a range of subjects studied. Since so few students volunteered to take part every single one was included in the research.

Previous experience suggested that the types of adjustment students required varied according not only to their degree of print disability, but also in relation to the courses they studied. For example, social sciences-based courses tend to require more background reading than maths-based subjects so require more documents converting to alternative formats, but the production of mathematical notation *etc.* can be tricky and lecturers are more likely to 'chalk and talk', producing visual information that is difficult for many students to access. Foreign language-based courses also present particular challenges as non-English Language materials need to be produced in alternative formats. This presents particular problems for Braille users who may not understand the Braille code for the particular language they are studying, or no code may exist at all. It was hoped that students from a wide range of courses would take part and in the end the following subject types were represented: maths-based, science-based, computing-based, foreign language-based, social science-based, psychology-based and media-based.

22 students originally took part in this research, but one was later excluded because when interviewed it was revealed that although he had dyslexia he did not need to adjust standard format print and so did not meet the eligibility criteria. Of the remaining 21 participants, four were from University A, four were from University B, two were from University C, four were from university D and seven were from other UK universities (labelled E). Nine were female and 12 were male. 17 were home students, and only four of these were not receiving DSA. Four were international students. One student's domicile and DSA status are not known.

The most popular subject area was psychology-based (six), followed by social science-based (five), followed by computing-based (four) and science-based (three). The remaining three students were taking maths-, media- and foreign language-based courses. It should be noted that whilst only one student (David) was taking a maths-based course at the time of interview, another (Jim) had been a joint honours maths- and psychology-based undergraduate the year before, and many of the science- and computing-based students commented on the amount of maths involved in their courses. The majority of the student participants (15) were undergraduates and the remaining six were postgraduates.

The majority of the students in this research had visual impairments (15); one was deafblind, nine were blind, and five had low vision. Five had dyslexia, and one of these also had a squint (the medical term for this eye condition is strabismus), but his interview suggested it did not contribute to his print disability to any significant degree. The remaining student was colour blind and was the only student who would not have been considered officially disabled using the DDA definition.

The most common preferred format was Braille which was used by seven of the students. Electronic format was preferred by five students, large print by two and audio by one. The remaining six students preferred printed materials with standard *sized* font, but preferred to change other factors such as font type, paper colour, layout or spacing. This information is summarised in Table 3.3.

Details such as age and ethnic origin were not collected as they were felt to be too sensitive to ask about in an interview situation. Flash cards could not be used reduce any possible embarrassment due to the students' print disability. The researcher's own visual impairment meant it was not possible to make visual estimates of these either.

Table 3.3: Summary of the main characteristics of the students studied

No	Pseudonym	Uni	Gender	Status	DSA	Subject	Level	Condition/impairment	Format	Disabled
1	David	A	Male	Home	Yes	Maths	UG	VI - blind	Braille	Yes
2	Jenny	A	Female	International	N/A	Social science	UG	VI - low vision	Large print	Yes
3	Jim	A	Male	International	N/A	Psychology	PG	VI - blind	Braille	Yes
4	Judith	A	Female	International	N/A	Psychology	PG	Dyslexia	Print	Yes
5	Graham	B	Male	Home	No	Computing	PG	Colour blind	Print	No
6	Simon	B	Male	Home	Yes	Computing	UG	VI - blind	Electronic	Yes
7	Scott	B	Male	Home	Yes	Computing	PG	VI - blind	Electronic	Yes
8	Jake	B	Male	Home	Yes	Social science	UG	VI - low vision	Print	Yes
9	Paul	C	Male	Home	Yes	Psychology	PG	VI - blind	Electronic	Yes
10	Carly	C	Female	Home	Yes	Science	UG	Dyslexia	Print	Yes
11	Richard	D	Male	Not known	?	Computing	UG	VI - blind	Braille	Yes
12	May	D	Female	Home	No	Social science	UG	Dyslexia	Print	Yes
13	Emily	D	Female	Home	No	Psychology	UG	Dyslexia	Print	Yes
14	Steve	D	Male	Home	Yes	Science	UG	VI - low vision	Electronic	Yes
15	Caroline	E	Female	Home	Yes	Media	UG	VI - blind	Braille	Yes
16	Matthew	E	Male	Home	Yes	Psychology	UG	Dyslexia and a squint	Audio	Yes
17	Luke	E	Male	Home	Yes	Foreign language	UG	VI - blind	Braille	Yes
18	Kathryn	E	Female	Home	No	Psychology	UG	VI - deafblind	Braille	Yes
19	Mark	E	Male	Home	Yes	Science	UG	VI - low vision	Large print	Yes
20	Helen	E	Female	International	N/A	Social science	PG	VI - low vision	Electronic	Yes
21	Mandy	E	Female	Home	Yes	Social science	UG	VI - blind	Braille	Yes

3.6.3 Staff

Staff recruiting also relied on 'referrals' from network connections that were made in various universities so that contact could be made with potential gatekeepers. Information from these gatekeepers was used, along with university websites and publications, to identify which members of staff would make the most appropriate participants. These were then contacted via email and invited to take part in this research. Staff who took part were also invited to pass the details of this research on to colleagues they felt might be interested in taking part.

29 staff took part in this research; ten worked at University A, five worked at University B, seven worked at University C and seven worked at University D. Staff participants were sub-divided into three categories according to whether they: worked predominantly to support disabled students, referred to as 'disability support staff' (13); worked with all students, but a specific part of their role was supporting disabled students, referred to as 'disability support related staff' (6); or, staff who do not fit into either of the first two categories, referred to as 'non-disability support staff' (10). Staff in the third category generally had an interest in disability issues, although this was not a specific part of their job. Some said they were members of working groups exploring provision for disabled students, and all had been involved with supporting disabled students or making policy decisions that would affect such students. Table 3.4 gives a breakdown by category and generic job title.

Table 3.4: Number of staff who took part by category and generic job title.

Disability support staff	
Alternative formats manager	2
Alternative formats manager and disability service adviser	1
Disability service adviser	5
Disability support worker	1
Disability support worker and disability service tutor	1
Disability support worker co-ordinator	2
Maths and disability support tutor	1
Sub-total	13

Disability support related staff	
Social science-based DDO	2
Education-based DDO	2
Psychology-based DDO	1
Maths-based DDO	1
Sub-total	6
Non-disability support staff	
Maths-based academic	1
Computing-based academic	2
Maths support tutor	2
Library and IT manager	2
Library manager	1
Science- and computing-based subject librarian	1
Education- and psychology-based subject librarian	1
Sub-total	10
Grand total	**29**

It can be seen that the most common job title was disability service adviser (five participants), and since these members of staff are at the forefront of providing adjustments for print disabled students this is not unexpected. They belong to the largest category of staff, 'disability support staff' (13), and again the size of this category was not unexpected. The category of 'disability support related staff' contained only six participants, and it had been predicted that the number of participants in this category would be larger. Greater numbers of staff participants fell into the 'non-disability support staff' category (10) than had been expected and this contributed to a larger overall number of staff participants than had been anticipated.

3.7 Access

In order to gain access to each university, an email was sent to selected gatekeepers to request their help in recruiting both staff and student participants. These gatekeepers were selected from those suggested by network contacts. In addition, individual members of staff identified by gatekeepers, or using websites or other university publications, were contacted via email.

Initially, relevant staff members were asked to pass details of the research on to print disabled students they had had contact with. They were provided with electronic copies of plain text versions of research information via email, so that it could be more readily converted into each student's preferred format. Two universities did not wish to contact students who had dyslexia via email so asked for posters or leaflets to be produced instead.

3.8 Methods of data collection

All interviews were digitally audio recorded, as all participants gave their informed consent. Before recording began, participants were asked to choose their own pseudonym, although some chose to use their own first names instead as they said they did not mind if they were identifiable. These real names were changed at a later date when the concern grew that if one respondent was identified, revealing the university they worked or studied at, other participants would be more easily identifiable.

Recordings were then transcribed as soon as possible after the interview by a team of assistants who agreed to sign non-disclosure agreements. The transcripts were made available to participants via email, or in print if the participant preferred, so that they could verify that the transcripts were a correct account of what was discussed. They were also invited to highlight any changes that they wished to make or to remove any parts they were not comfortable with. Participants were then asked to give consent for this material to be used and quoted in the final thesis and other papers relating to this research. In practice, it was necessary to state in the email or letter that if they did not reply within 30 days it would be assumed that they were happy with the transcript as it stood to avoid 'losing' data from participants who had moved house or job, changed their email address, or were simply too busy to respond. Very few participants requested changes to be made, although a couple requested removal of specific details that made them easy to identify.

3.9 Methods of data analysis

Interview transcripts were coded according to a coding framework created by drawing out similarities and differences between the participants' accounts. This coding framework was not determined in advance, but rather created responsively. Each transcript was systematically analysed and key themes were categorised for later comparison with those from other transcripts. This follows the method described by Burnard (1991), which is: "one of thematic content analysis. It has been adapted from Galser and Strauss' 'grounded theory' approach and from various works on content analysis (Babbie 1979; Berg 1989; Fox 1982; Glaser and Strauss 1967)" (Burnard, 1991, p.461). A key difference though is that while Burnard worked with paper copies and highlighter pens, this analysis was conducted using a computer and a word-processing package. It had been hoped to use an Internet based wiki, but constraints regarding the amount of information that each section could contain made this impossible. Instead various electronic documents were produced and structured according to headings easily accessible using the 'document map' function of Microsoft Word. These were kept to about 100 large print pages each for ease of use, and later each heading was turned into a separate document containing all the quotes that related to it.

Firstly, transcripts were read through and notes were made on the general themes, for example, 'a major theme seems to be the difficulty of obtaining lecture handouts in advance'. The aim was to become more fully immersed in the data. Transcripts were read through again and as many headings "as necessary" were recorded to "describe all aspects of the content" (*ibid.* p.462). This list of categories was then considered again and some of the categories were reduced by grouping them together into broader categories. For example, 'lecturers sometimes forget to provide handouts in advance', and 'the alternative formats service cannot always transcribe handouts in time for lectures', were grouped together under the categories of 'problems of accessing lecture materials'. A final list was then produced by checking for and removing any headings that were repeated or very similar.

Transcripts were then reread to ensure that all areas of the interviews were covered by the headings and subheadings. Each transcript was then gone over and 'coded' according to the list of headings by cutting and pasting pieces of the transcript into the Word document and each item of each code was then collected together. This meant that although not all of the words used by participants were included, those most pertinent to the research were highlighted under coded headings that were easier to access than the long original transcripts.

3.10 Ethical considerations

In conducting any study it is necessary to consider how to protect the welfare of participants. The need for informed consent, anonymity of universities and confidentiality of participant data were paramount in designing this study.

In order to gain informed consent it was necessary to explain to participants what the study involved, its purpose and how their data would be handled, as well as assuring them that it would remain confidential. During stage one, it was necessary to provide a certain amount of information to them prior to each interview (before knowing their preferred format for correspondence) and it was important to ensure that they were able to access this. To assist with this, the 'factsheet for participants' (see Appendix D) was produced as 'clear print' with a minimum 14 point Verdana font, and 1.5 line spacing. Copies were printed not only on white paper but on various shades of pastel paper, including light beige as suggested by Fuller et al. (2004, p.307). Large print versions were produced in 16 and 20 point Verdana font, also on white and pastel paper, and electronic copies were available on CD. The factsheet was also made available via email, and plans were in place to produce Braille on request although in practice this was not asked for. In a few cases, the information had been made available via email but the participant had not had time to read it and since the other printed formats were not sufficient the factsheet was read to them. All participants in stage one were then asked to sign a consent form (see Appendix E) confirming that they had read and understood the factsheet. They were also given the opportunity to ask questions before the interview began.

Stage one involved the audio recording of participants during interviews. They were asked if they would mind their interview being audio recorded and the consent form also had a section in which they could indicate whether or not they were happy to be audio recorded. In practice all participants agreed, although contingency plans had been made should any of them have declined.

Stage two of the research involved gathering information from students using email and instant messaging. Potential participants were supplied with the 'factsheet for participants' via email. Before any personal data was collected, they were asked if they were happy for the information they supplied to be saved and used as part of this research. All agreed.

After the interview had been carried out or electronic questions answered, student participants were provided with a further factsheet (in various formats) of university services and national organisations that they could approach if they felt they had questions, wished to make a complaint or needed to find out more (not included in the appendices to preserve the anonymity of the universities studied). As the universities the students in stage two attended were not known to the researcher it was not possible to produce such factsheets but general advice was given about national organisations that could provide sources of support if needed.

As mentioned above, and continued later, many steps were taken to ensure the confidentiality of the participants' data. It was not possible to assure participants of anonymity, especially the students who took part, due to the small number studied and the possibility of them having unique characteristics that make them identifiable. For example, there are very few postgraduate maths-based students with visual impairments in the UK. Full course details were removed to make participants less easy to identify, however, and steps were taken to allow the universities they attended to remain anonymous.

Whilst not necessarily remaining anonymous, all information on participants was treated as confidential, and the storage of storage of data complied with the Data Protection Act 1998. The digital audio recordings made of participants are kept securely and have not been and will not be released to anyone else.

My disabilities make it difficult for me to access handwritten text, so such data was produced, and stored, electronically. Steps were taken, however, to ensure the security of this electronic data. My computer and laptop are password protected, so confidential files are not easily accessible to anyone else. The email account used for communication is also password protected, so any information sent this way is also secure. The computer and laptop used for this research are connected to a secure wireless network, which uses wireless encryption and a firewall, which should be more than adequate to prevent anyone from accessing any data remotely. Identifying details were permanently removed from transcriptions at the earliest possible stage, and, in order to comply with the Data Protection Act

1998, audio recordings will be destroyed within six years of completion of this study.

To protect both the participants and the researcher, interviews were conducted in public places, such as university buildings or public cafes. Since I have difficulty getting around unfamiliar places I often had a support assistant with me while conducting interviews at the universities, but steps were taken to ensure my assistant did not meet participants. My assistant took me to the university or other venue and then waited in a separate area while I conducted the interviews. My assistant did not meet any of the participants and so could not identify them.

Recordings were made digitally, but for practical reasons most were transferred to tape for transcribing. Due to cost constraints it was not possible to contract this work to private individuals, and so help was initially enlisted from a School secretary at one of the universities under study. Her position within the university had already exposed her to a variety of confidential information, so there were few concerns there. The only exception was when an interview was carried out with member of staff from the School she worked for when alternative arrangements were made. In practice the secretary found she was too busy to complete all the transcription work, so the remainder of the work was carried out by five post-graduate students. They were involved in postgraduate research themselves and so were familiar with issues of confidentiality but were also asked to sign non-disclosure agreements before the work began.

Lastly, it was important to prevent participants, particularly the students themselves, from expecting too much from the research. It was necessary to explain that whilst the long-term goal was to improve the experience of print disabled students, it was unlikely that this research would have any impact on the participants' personal short-term experience of adjustments. During some interviews it became apparent that a student was not receiving the support he or she was entitled to, but it was not possible to intervene directly without jeopardising my research. This had been anticipated and was one of the reasons for designing the factsheet outlining who to contact for support both within the university and via national organisations.

3.11 Conclusion

Several factors have influenced the design of this research and the methods used, especially my own status as a disabled person and my resultant desire aim to carry out emancipatory research. The research subject is a difficult one, especially for someone so close to it. I am a disabled student myself and I experience barriers and receive adjustments, so it is not possible to extricate myself from the topic of research. Despite the number of difficulties associated with being either an outsider or an insider, I feel that sensitivity to the difficulties of each enabled me to reap the benefits of being an insider while avoiding many of the difficulties.

This qualitative study used various methods, including analysis of documents, semi-structured interviews with staff and students, and questions answered electronically by students. These methods were not exactly the same as those envisaged at the start of the study, but grew and adapted primarily as a reaction to the response rate of students. They remained, however, broadly in line with the original aims of the study.

The methods used were very similar to those of other studies of the experiences of disabled students. For example, Holloway also used: "semi-structured interviews, and analysis of documentation from the university relating to policy and practice" (Holloway, 2001, p.598); "core categories were developed from the student information using grounded theory" (ibid.); and "students received copies of their interviews and were able to edit them and had the option of withdrawing from the study at any time and are referred to by pseudonym" (ibid.).

Much consideration was given to the ethical implications of working with staff and students who might have identifiable characteristics. Steps were taken to protect their identities as far as possible, but all participants were made aware that full anonymity could not be promised. Written consent to take part in the research and to be audio recorded was a prerequisite of interviews taking place. Those who took part via email or instant messaging were also asked to confirm that they were happy to take part and have their responses recorded.

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4. How do universities, staff and students understand the concepts of disability and reasonable adjustments?

4.1 Introduction

This chapter addresses part a) of the research question which asks: "which models of disability do universities, staff and students utilise?". It considers the way in which the four universities appear to understand disability, their responsibility for causing and preventing it, and the types of barriers they identify. It similarly explores how staff and students in this study understand the terms 'disability' and 'reasonable adjustment', as well as any types of barriers they highlighted. It considers whether the views of the universities, staff and students involved in this study tend more towards those expressed by the social model of disability, the medical model of disability, or the model evident in the disability legislation (as described in Chapter 2).

4.2 University perspectives

This section is based on evidence provided by the first Disability Equality Statements (DESs) produced by the four universities in 2006 in response to the Disability Discrimination Act 2005. The disability provision outlined in their DESs (and other documents) was briefly considered in Chapter 3, but this section is concerned instead with the perspectives on 'disability' and 'reasonable adjustments' suggested by these documents. As explained in Chapter 3, these documents were analysed by searching for answers to three questions:

1) What is disability?
2) Who or what is responsible for 'causing' disability?
3) Whose responsibility is it to prevent or reduce the barriers that lead to disability?

All four universities claimed to have adopted a social model of disability approach, but these answers provide a greater insight into the theoretical perspectives of the four universities.

Direct quotations from the four DESs are frequently given, as the language used is important in terms of understanding the content. Terms of particular significance are highlighted using italics. Page numbers are not given because the need to preserve the identity of the universities that took part in my research means that the DESs cannot be identified.

4.2.1 University A

What is disability, and what causes it?

University A explains the main premise of the social model of disability as being "the recognition that primarily it is the *loss or limitation of opportunities*, due to environmental and social barriers, that prevents people who have impairments from participating in society on an equal level with others". University A identifies these barriers as varying "from the infrastructural (buildings, transport), through to the informational (access to text, electronic media), the organisational (inflexible policies and procedures) and the social (stereotyping and prejudice)". It also adds that "disabled people with different impairments can experience different barriers to service provision".

Who or what is responsible for 'causing' disability?

By describing the social model as 'primarily' placing responsibility for disability on society, University A provides the opportunity for considerations of any disabling effects inherent in certain impairments, although this suggestion is not actually made. University A is careful to remove all blame from individuals with impairments, and to explain how disability results from barriers that such people experience. It does not, however, explicitly state that it is society, and the individuals in it, that creates these barriers. Because of this, its understanding of disability can be said to more closely resemble that used by the legislation than by the social model.

Whose responsibility is it to prevent or reduce the barriers that lead to disability?

The DES states that "*all members of the University* have a responsibility for promoting an inclusive environment within the University and for not discriminating, harassing or victimising individuals on the grounds of disability". It therefore recognises that everyone has a responsibility to reduce the disabling effects of impairments. It says that "the University's approach is to *mainstream* activities across all services in order to ensure that disabled people are able to access and use services, and are not discriminated against, directly or indirectly, for reasons of disability". This again suggests that it is not just those working in specialist services who have a responsibility to promote inclusion, but all staff. It says the University aims to promote "equality of opportunity and is keen to achieve an *inclusive* environment [...] in which all its provision, policies and procedures, including the curriculum, are accessible" and clearly it is expected that all staff will play a part in this.

The appendix mentions the legislative requirement to make "reasonable adjustments" and suggests that these may be necessary to overcome barriers. The DES also describes how the University has created a policy framework that encourages the mainstreaming of inclusivity and accessibility. It states that the University recognises the potential difference between "formal policy documents" and actual practice, and is "acutely aware of the importance of ensuring that the principles and practice of equality of opportunity are firmly embedded in its culture and systems". Whether or not this appears to be the case will be discussed later in Chapters 5, 6 and 7.

4.2.2 University B

What is disability?

The University uses the definition of disability provided by "the Government's 2005 report 'Improving the Life Chances of Disabled People'". This report defines disability as: "disadvantage experienced by an individual resulting from barriers to independent living, education, employment or other opportunities that impact on people with impairments". The University again quotes from this report to explain the types of barriers that disabled people may face, explaining that these may be:

> ... attitudinal, for example among disabled people themselves and among employers, health professionals and service providers; policy, *resulting from policy design and delivery which do not take disabled people into account*; physical, for example through the design of the built environment, transport systems etc; and those linked to empowerment, as a result of which disabled people are not listened to, consulted or involved.

The University explains that this definition of disability reflects a social model of disability perspective, and acknowledges that this definition is different to the definition used in the legislation. It adds that: "in the Disability Equality Duty Code of Practice, the Disability Rights Commission indicates that the social model of disability "...provides the basis for the successful implementation of the duty to promote disability equality"".

Who or what is responsible for 'causing' disability?

In one of the quotations used above, it is recognised that policy-related barriers can result from "policy design and delivery which do not take disabled people into account." Generally speaking though, University B's DES does not specifically mention who or what might cause barriers, and there seems very little recognition that, as the social model emphasises, it is society, and by implication universities themselves, that cause these.

Whose responsibility is it to prevent or reduce the barriers that lead to disability?

Again, this is hard to determine from this DES. It talks of "removing barriers that may prevent full participation", ensuring a "culture of support and inclusion", challenging "discrimination and prejudice" and eliminating "both direct and indirect discrimination".

University B recognises that "there are still improvements that can be made to promote disability equality across all of the University's functions and to be even more *proactive* about building disability equality issues into the University's *mainstream activities*". At no point is there any real recognition that the University, or individuals within it, may directly or indirectly cause disability. This suggests that, as with University A, University B's understanding of disability and reasonable adjustments is more closely aligned with that of the legislation than with that of the social model which it claims to have adopted.

4.2.3 University C

What is disability?

University C indicates very early on in its DES that it utilises the social model of disability, and provides social model definitions of impairment and disability. The latter is defined in the DES as "the loss or limitation of opportunities to take part in society on an equal level with others due to *social and environmental barriers*".

Who or what is responsible for 'causing' disability?

University C explains how the medical model of disability places the responsibility for disability on the individual and contrasts this with the social model of disability which shows how disability is "caused by 'barriers' or elements of social organisation *which take little or no account of people who have impairments*."

Whose responsibility is it to prevent or reduce the barriers that lead to disability?

University C's DES often talks of bringing disability provision and equality considerations into the 'mainstream'. This suggests a recognition that it is the University and its entire staff body that has responsibility for preventing or reducing barriers, although unlike University A this is not specifically stated. For example: "The University respects the diverse needs of disabled students and staff and recognises them as being equally important to the needs of other students and staff. This will underpin the *mainstreaming* of disability equality into central provision making and strategy". The University "provides services to disabled students where student need is a *mainstream* element of planning, strategy and organisation". "It is the intention that Equality and Diversity issues, including those for disability, are *mainstreamed* throughout all the work of the organisation."

Additional note

One of the requirements of Specific Duty created by the DDA 2005 was to consult and involve disabled people in the production of their DES. University C seems to have taken this requirement very seriously, and its DES included a summary and analysis of the findings of the qualitative and quantitative data it collected. The elements that are particularly relevant to my research are related here.

University C found that "many [people] don't consider themselves to be disabled despite technically being classed as such. This was especially prevalent within the dyslexic respondents." This had been anticipated and was one of the reasons for presenting my research as an exploration of the experiences of print impaired students rather than print disabled ones, although this is the term adopted in this thesis.

Taken together, the qualitative and quantitative data University C collected also suggested that "adjustments in lectures were made on the occasions that they were requested. However, the qualitative data does suggest that on some occasions the requested adjustments were not made despite agreement by the lecturer". This supports many of the findings from other studies discussed in Chapter 2.

It is perhaps a reflection on the inclusive nature of assessments at University C that "the majority of respondents indicated that assessment exercises such as examinations, coursework and viva-voce exams were rated as not being a barrier to them". Its DES does go into great detail about assessment arrangements, and states that these include "consideration of different forms of assessment to time written examinations, for instance, additional coursework". The subject of alternative assessments was raised by a few of my staff participants (see Chapter 5) and they were generally wary of offering or providing these.

4.2.4 University D

What is disability?

University D does not specifically set out how it defines disability, but simply says that "the University recognises and acts upon the legal definition of disability as set out in Annex 4." The wording used in the first and third paragraphs of this annex is particularly important:

> When is a person disabled?
>
> A person has a disability if s/he has a physical or mental impairment, which has a substantial and long-term adverse effect on his/her ability to carry out normal day-to-day activities.
>
> [...]
>
> What does 'impairment' cover?
>
> It covers physical and mental impairments; this includes sensory impairments, such as those affecting hearing or sight.

University D does not explicitly state in its DES that there is a difference between disability and impairment. Nor does it include social model definitions of these.

Who or what is responsible for 'causing' disability?

Only a brief mention of the social model is made, and is presented here in its entirety:

> Our Disability Equality Scheme is informed by the social model of disability, which maintains that the 'barriers' or *elements of social organisation* that exclude people who have impairments should be identified and removed. Examples of such barriers include prejudice and stereotypes, inflexible organisational procedures and practices, inaccessible information, inaccessible buildings and inaccessible transport.

This statement clearly identifies social organisation as the problem, but at no other point is the cause of disability mentioned.

Whose responsibility is it to prevent or reduce the barriers that lead to disability?

The quotations provided above do not suggest that University D takes a strong interest in the social model, and indeed there is little indication in its DES that it accepts that society is responsible for disability. Despite this, University D clearly takes its responsibility to promote disability equality and remove barriers very seriously. University D's DES states that it has set itself a number of goals that aim to "ensure that equal opportunities targets and procedures are *understood* throughout the university and to put in place programs to implement good practice throughout the institution." One of the planned outcomes of this document is "to achieve institution-wide ownership of the Disability Equality Scheme and Action Plan". These statements suggest that University D believes that all members of the university should be involved in creating equality, and to do so they all need to understand how best to do this and embrace the ethos suggested by the DES.

Another of University D's aims was "to promote engagement of disabled people and their representatives with the work of the University". The other three universities talked in terms of 'involving' disabled people, but 'engaging' suggests a higher level of commitment to ensure the DES reflects their needs and wishes, and to allow them to be active participants in its creation. Indeed, it states that "the University recognises the importance of securing the contribution of the disabled people and other stakeholders in developing this scheme". Its methods of doing this included "consultation", "engagement" and "active involvement".

All this suggests that University D believes that all members of the University have a responsibility to prevent and reduce barriers and promote equality. It also enables disabled people to influence the policy designed to encourage this. It is therefore very difficult to categorise University D in terms of its understanding of disability and reasonable adjustments. The wording used does say that the DES is 'informed' by the social model and not that University D accepts this model. It also says that the definition of disability used is the one provided by the legislation. It appears therefore that University D uses the approach to disability taken by the legislation.

Generalisations are clearly made in Section 4.2 about the perspectives and understandings of disability and reasonable adjustments displayed by each university in their first DES. In order to do this, it was necessary to temporarily assume that universities can and do have a collective viewpoint. They are in fact made up of a large number of individuals with differing views, and policy documents such as these are an attempt reach and document a consensus. Each DES explained in general terms who had been involved in its production and had therefore influenced the policy decisions that were made. Whilst the content and intentions of these documents were generally consistent, and it was clear from reading them that more than one author had written each document. In fact, in several cases it was apparent that sections had been added by 'cutting and pasting' from other documents as the tense and language used was not always consistent. It was noticeable that the use of 'disabled students' and 'students with a disability' was not always consistent, and some sections seemed to more closely reflect the social model of disability than others.

Only University C was found to fully embrace the social model of disability, and the other three were found to be taking an approach much closer to that used in the legislation. Interestingly though, it appears that the approach taken to disability does not necessarily correlate with how seriously a University takes its responsibilities in terms of ensuring disability equality. University D appeared to be the most committed to this, and yet it adopted the approach suggested by the legislation.

4.3 Staff perspectives

As was described in Chapter 3, staff participants were categorised as belonging to one of three groups: disability support staff (13 participants); disability support related staff (6 participants); and, non-disability support staff (10 participants).

4.3.1 Disability

Four of the 13 disability support staff interviewed explicitly said that they define disability in terms of the social model. Only one other staff participant, from the category disability support related staff, said this. As the words they use are of great importance, quotations from each of their explanations are included below:

> I personally absolutely agree with the social model. That it is an impairment that an individual has but they are further hampered and handicapped by what's around them.
>
> *Susan, disability service adviser, University A.*

> I would always use a social model of disability... [its] an issue caused by the barriers that people face in society in their

> day-to-day life. [...] barriers might be attitudinal, physical or environmental or just built into the system like institutional.
>
> *Lizzie, disability service adviser, University B.*

> I take a social model approach to disability ... Procedures and practices are put in place by society that make life more difficult for people than it should be.
>
> *Karen, disability service adviser, University C.*

> ... it's very much the social model ... it is the environment that is causing difficulty.
>
> *Rachel, disability service adviser, University D.*

> I tend to immediately go for the ... social model of disability, so it's I think a disability more in terms of things that disable students from participating in things.
>
> *Abbey, education-based, University A.*

Four of these five staff were disability service advisers so it is not surprising that they are aware of the social model of disability. They describe the problem as arising from the way in which people are 'further hampered' by the 'attitudinal, physical or environmental' and 'institutional' barriers, that result from 'procedures and practices' 'put in place by society'.

Whilst the approach to disability taken by the legislation is not fully compatible with the social model of disability (see Chapter 2), all four universities said in their DES that they adhere to this (see Chapter 3 and Section 4.2). Since universities are required to make adjustments in accordance with the legislation, there is potentially a conflict between these two approaches. One disability support staff participant highlighted this, saying: "obviously in the job I have to go along with the definition as described in the Disability Discrimination Act and saying that, but I personally absolutely agree with the social model of disability" (Susan, disability service adviser, University A). None of the other three quoted above alluded to contradictions between their work and personal definitions of disability but, as is discussed in Chapter 2, this is a potential problem.

This is not to say that other staff participants did not make statements that showed they distinguished between disability and impairment. One disability support related staff participant said: "someone with a long term medical condition could be classed as disabled, if that medical condition is giving them a physical or mental impairment" (Charlie, social science-based DDO, University A). Another said: "we look at the term disability really within the context of long term illness and any long term impairment" (Jessie, psychology-based DDO, University A). Similar comments were made by a third participant from this category (Laura, social science-based DDO, University A).

None of the non-disability support staff participants, however, appeared to draw such distinctions, and their general discussions seemed to indicate that many were more aligned to the medical than social models. One non-disability support related staff participant spoke of "sight disabilities" (Mike, maths-based academic, University B) rather than visual impairments, and another from the same category defined disability in terms of "physical, or cognitive or emotional factors" (Tom, maths support tutor, University C) rather than pointing to how society makes these impairments into disabilities. This is not to say that these two members of staff definitely understood disability in terms of the medical model, but their language was not typical of a social model approach. This language was more commonly used by non-disability support staff, and may reflect the fact that they are less involved in disability issues and so less likely to be aware of the 'correct' terminology.

Non-disability support staff did still show some very progressive ideas in terms of disability, including the ideas that everyone is potentially 'disabled' in some way. One said: "everybody has particular needs in some way" (Melanie, library and IT manager, University A) and another said "there's official disabilities and unofficial disabilities. I guess a lot of what I do is helping people with what isn't defined officially as a disability (Eric, science- and computing-based subject librarian, University B). A third also recognised the different abilities that people have: "There is a big range of abilities that people have and where you start calling a disability is difficult isn't it?" (Julia, computing-based interested academic, University B).

Across all categories there were staff who, perhaps unintentionally, explained the term 'disability' as something experienced by those who were not part of the 'majority' or 'normal' part of society. One disability support staff participant said: "a disability is where a person requires things different to the majority of other people" (Jackie, disability service adviser and alternative formats manager, University B). A non-disability support staff participant also suggested that a disabled person is someone who is: "so differently abled that *someone says* OK that's a line you are now different and you know you've got to have special help offered" (Eric, science- and computing-based subject librarian, University B, emphasis added). This last comment is particularly interesting as his wording introduces the idea of someone other than individuals themselves deciding that their impairments make them 'disabled'.

In terms of who should make the decision as to whether another is disabled, this was something staff participants could not agree on. One disability support related staff participant said she tried to ensure that she never imposed the term 'disabled' on anyone. She spoke instead of "the person who defines themselves as disabled" and went on to say that:

> I've had students coming to me and explaining what they have, and ask me if they are disabled. And I've said that's your opinion. ... The definition is there in the text [of the legislation], but also you need to make sure that people feel happy with the definition.
>
> *Jessie, psychology-based DDO, University A.*

In contrast, one disability support staff participant felt that she needed to make this decision as to whether or not someone was disabled in order to apply for DSA:

> So for a student who comes into my office, I'm looking at whatever they're dealing with and thinking, 'right, does this qualify as a disability in Higher Education?'... If it wasn't classed as a disability you wouldn't get exam arrangements, you wouldn't get the DSA, you wouldn't get reasonable adjustments.
>
> *Rachel, disability service adviser, University D.*

There was a recognition amongst many staff participants that the term 'disability' should not just be applied to those with physical impairments.

One disability support related staff participant pointed out that some individuals have "non-physical problems which effect their everyday life" (Laura, social science-based DDO, University A). She also mentioned that University A "uses the term [disability] separately in its terminology [and adds] and/or dyslexia and long term illness" (*ibid.*) Another disability support related staff participant agreed, saying that he would include, "mental impairment, a learning disability can be classed as a disability, like dyslexia, dyspraxia and so on, [or] someone with a long term medical condition" (Charlie, social science-based DDO, University A). A third disability support related staff participant also talked about including "long term illness" (Jessie, psychology-based DDO, University A), and a disability support staff participant referred to "medical conditions" (Lizzie, disability service adviser, University B). One non-disability support staff participant listed some of the things he would consider to be a disability:

> ... students who are dyslexic ... students who have hearing problems, the students who've got sight problems, ... we've got students with very serious muscular ... in wheelchairs ... So it is a whole range of things so I wouldn't try to pin it down to one particular thing.
>
> *Mike, computing-based academic, University B.*

One disability support staff participant did not specify which groups she might consider to be disabled, but did say that: "I think really, disability encompasses such a wide group of people" (Karen, disability service adviser, University C). This is of course reflected in both the legislative and social model definitions of disability, and shows a degree of familiarity with the many facets of disability.

Staff participants pointed out that for some students their disabilities are obvious - they may carry a white stick, use a guide dog or wheelchair, or wear hearing aids. One non-disability support staff participant talked about the number of disabled students that he had met and whether or not their disabilities were obvious:

> Sometimes it's obvious and sometimes it's not I mean if you've got a student in a wheelchair ... who isn't allowed up in the lifts because of fire risks it is absolutely obvious.
>
> *Mike, computing-based academic, University B.*

Some deaf students that he had worked with had had "special equipment so they could hear, that's obvious" (*ibid.*). But he also had one student with a visual impairment that he did not know about until he saw him using a pair of binoculars in a lecture. One disability support related staff participant mentioned the need for students to disclose their disability if it is not obvious, e.g. if they have dyslexia (Jessie, psychology-based DDO, University A). One disability support related participant highlighted that disclosure, and early disclosure, makes it easier to ensure that appropriate arrangements are in place. He said this was particularly important if the student has a disability that is likely to have a "significant impact" and require very individualised adjustments. He said that if his department knows they will have "a student doing a course then we would consider it before they arrive, before we even make the offer, they would say can we make reasonable adjustments here and nearly always you can" (John, maths-based DDO, University A). No-one else, however, brought up issues of obvious/hidden disabilities and disclosure, which is perhaps not unexpected since it is a very delicate area.

One disability support staff participant talked about disability in a subtly different way to everyone else, describing it as:

> ... a difference in the way in which people perhaps come to learning, they bring with them different strengths as well as different weaknesses and it's an opportunity we have to harness the strengths in order to overcome the weaknesses.
>
> *Sarah, maths and disability support tutor, University C.*

When asked if she saw dyslexia as a disability or something else she replied: "I think it's a specific learning difference and we use SpLD but the D being difference rather than disability" (*ibid.*). Picking up on this thread, an email was sent to several of those who had taken part in the research to ask them what they believed the 'D' in 'SpLD' to stand for. One disability support staff participant replied to say she uses "the 'D' as meaning difficulty" (Rachel, disability service adviser, University D). A representative from University A's disability service said (in private correspondence):

> ... we tend to use the words 'difficulty' or 'difference' as part of an explanation to the student about their dyslexia to help them

> understand what dyslexia is. I think that we use these as the other terms can be unhelpful to the students but we may well explain that some other terms have been used (and in some cases still are in use.)
>
> *Anonymous, University A*

These 'other terms' might include 'disability', 'disorder' or 'dysfunction', three terms that are perhaps used more in America than in the UK. When this term was used in 2003 by the Government's SpLD Working Group it meant 'difficulties' and included "dyslexia, dyspraxia, dyscalculia and AD(H)D [Attention Deficient (and Hyperactivity) Disorder]" (*Department for Innovation, Universities and Skills (DIUS)* Website, 2009). The British Dyslexia Association (BDA) also calls dyslexia a "specific learning difficulty" (BDA Website, 2009). The idea of SpLD standing for 'specific learning difference' is an interesting one and one of the students who had dyslexia said she herself preferred to think of the 'D' as 'difference' (see Section 4.4.1).

4.3.2 Reasonable adjustment

Staff participants gave a number of examples of what they saw as reasonable adjustments. One disability support related staff participant said, "so if the access to learning needs to go through an audio tape instead of visual text, or if it needs to be different print or if ... a notetaker is needed ... we need to accommodate the access, library browsers etc." (Jessie, psychology-based DDO, University A). One disability support staff participant identified the following: "notetakers for people who have slow writing speeds in lectures, digital recorders in place of the notetakers ... assistive technology in terms of software and providing laptops and so on under the DSA arrangements, but also study skills support" (Sarah, maths and disability support tutor, University C). These comments seemed to encompass most of the common adjustments (for more details on these see Chapters 2 and 5).

When asked to define 'reasonable adjustment', some staff participants felt the temptation to use the word 'reasonable' in their definition itself. For example, one disability support staff participant said: "reasonable adjustment to me means something that the University can do within a *reasonable* time scale, wherever is practical and within a *reasonable* cost given the resources of the University" (Susan, disability service adviser, University A, emphasis added). One disability support related staff participant said adjustments must be "*reasonable* in terms of resources ... *reasonable* in the sense that they don't give an advantage" (Abbey, education-based DDO, University A, emphasis added). This is perhaps because it is very difficult to define a term that is deliberately left vague by the legislation. These two participants do make good points, however, as the Code of Practice does list factors such as cost and other resources as reasons why a university may justifying failing to make an adjustment. One disability support related staff participant suggested that "reasonable could mean that the effort of putting something in place doesn't outweigh the benefit" (Charlie, social-science based subject DDO, University A). One disability support related staff participant pointed out that providing a reasonable adjustment might be "about being anticipatory about where you might need to put systems in place that naturally accommodate the needs of students with disabilities", or responding "at the time when the need for an adjustment arises in relation to a particular student" (Laura, social science-based DDO, University A). Again, the legislation does split adjustments into those made responsively for disabled students already in attendance and those made in anticipation of future disabled students.

Some staff went into great detail about how they would decide whether something was reasonable or not. For example, one non-disability support staff participant said:

> I think if there was an additional cost for providing some support for a student I think that I would think that would be reasonable as long as it was not a disproportionate amount of funding compared to what is available for everyone else. I suppose that the way to do it is to look at the total cost of the provision and if that is a relatively small percentage of the total then that is certainly not unreasonable.
>
> *Tom, maths support tutor, University C.*

The answers discussed above all relate to when a reasonable adjustment should or should not be made. Some staff, however, answered this question more in terms of 'What function does a reasonable adjustment serve?', which is what was originally intended by the question. (That is not to say that the other answers given were not interesting or useful, simply that they were not what had been expected.) One disability support related staff participant said that a reasonable adjustment was one that would "help the student in question basically learn on a level playing field with other students" (Charlie, social science-based DDO, University A). Similarly, another said: "you do as much as you can to ensure that a student's experience in the classroom is the same as anybody else's in the classroom and that they are able to do a course like anybody else" (Elma, education-based DDO, University A). A third talked of "enabling participation" (Abbey, education science-based DDO, University A). One disability support staff participant said that an adjustment should be something that was "useful and rewarding and enables effective learning" (Sarah, maths and disability support tutor, University C) and a disability support related staff participant also talked about ensuring students could "access learning, that's what they're paying for" (Jessie, psychology-based DDO at University A). Another disability support staff participant said that "most of the barriers to learning, for disabled people, don't need to be there" (Karen, disability service adviser, University C) and said that a reasonable adjustment was about "adjusting something so that it can include more people, and not exclude people" (*ibid.*). For these staff participants it is obvious that what was important was that disabled students are entitled to study their subject just as much as non-disabled students are, but they might need some reasonable adjustments to allow them to do this, and will perhaps do it in a slightly different way. There was also a suggestion that the university environment can create unnecessary barriers for disabled students and is not always as inclusive as it might be. This is clearly the approach taken by the legislation, and may even suggest a social model approach.

Some staff went slightly further than this. One disability support staff participant said that adjustments should be made "in a way that's best" (Lizzie, disability service adviser, University B) for the student, which perhaps introduces the idea that students should have some say in the adjustments that are made for them. This an idea that is introduced in the social model of disability, and also contributes to students being able to emancipate themselves from the disablism they experience. Another disability support staff participant included social life as part of what students should be able to participate in: "reasonable adjustments are made so that they enable that student to ... take a full and active part in life, both academic and social, within the university" (Sarah, maths and disability support tutor, University C). Of course, DSAs only pay for adjustments to academic areas of the university experience, and this is all that SENDA 2001 covers. The DDA 1995 and 2005 does also require other things such as the Students' Union Bar to be accessible. Obviously, for the purposes of this research, it was course materials that needed to be accessible, but it is interesting to see that some staff also recognised that social activities were important to the lives of students as these were usually far beyond their remit.

These very generous interpretations of what constitutes a reasonable adjustment were all suggested by disability support staff. This is perhaps because staff participants in this category have a close involvement with disability issues, and generally adopt the social model of disability. One non-disability support staff participant who had had some involvement with making adjustments for disabled students also took a very generous view of what is reasonable. When asked what he thought a reasonable adjustment was, he said: "if someone needs something adjusting and we can do it that's a reasonable adjustment. I mean reasonable adjustment would mean anything that wouldn't involve me breaking the law, hmm, or spending so much time doing it that ... I get the sack" (Eric, science- and computing-based subject librarian, University B). He did not talk about reasonable adjustments that involved a cost to implement, perhaps because these were not the type of adjustments that he had been involved in, but seemed willing to consider any other adjustment that was requested.

Some of the staff discussed the need to be fair to all students, both disabled and non-disabled, and to make adjustments without giving the disabled student in question an advantage over others. One disability support related staff participant said: "I don't think anything should be put in place that gives them an advantage over other students" (Charlie, social science-based DDO, University A). Another said that it was necessary to make "adjustments to normal practice that enable disabled students to take part in the things we're doing, but don't in any way disadvantage other students ... being fair to everybody involved" (Abbey, education-based DDO, University A). In doing so staff were clearly trying to ensure a level playing field, but were not comfortable with going as far as to promote positive discrimination.

As has been shown above, reasonable adjustments come in many forms, and are made for many different reasons. One disability support related staff participant pointed out that "reasonable adjustments [are] defined in different ways for different situations" (Elma, education-based DDO, University A) and it is often the case that students with similar impairments need very different adjustments. She therefore suggests that it is best to make reasonable adjustments "on a case by case basis" (*ibid.*). What is seen as reasonable, however, can also depend on who is making the decision. One disability support staff participant illustrated this by saying: "what a disabled person might think of as reasonable an employer might jump up and down and say no no [we] can't possibly do that it'll cost us two and sixpence" (Lizzie, disability service adviser, University B). It is also clear from later chapters that what a disabled or non-disabled staff participant closely involved in supporting disabled students may feel is a reasonable adjustment, is not necessarily the same as what another member of staff may feel is reasonable (see Chapter 6).

As outlined above, disability support staff participants and disability support related staff participants tended to give very theoretical answers when asked to define the term reasonable adjustments and often referred to elements of the legislation. Staff who were less involved in disability support, and were perhaps more involved in making adjustments to teaching and learning directly (e.g. academics) sometimes had different concerns about making reasonable adjustments. One non-disability support staff participant said: "if you were assessing a student and because of their disability you had to assess them in a different way to other students I think that's where it can get tricky deciding what is reasonable" (Julia, computing-based academic, University B). She said that the main adjustment she had been involved with recently was creating accessible PowerPoint presentations which in her words is "very easy" (*ibid.*). She felt that "the real difficulty is where you have to make changes [to assessments] and it's unclear if the standards are the same" (*ibid.*). She was referring to situations in which it is necessary to provide alternative assessments to those provided as standard. The challenge is to keep intended learning outcomes and difficulty of assessment the same, whilst altering the assessment itself to involve work that presents less of a barrier to the student concerned. The issue of alternative assessment was briefly raised by a disability support related staff participant, but her concern seemed more with ensuring that what they "expect from the student"

(Jessie, psychology-based DDO, University A) is reasonable. No other staff (or student) participants raised concerns about this.

Concerns were occasionally raised, however, in relation to making reasonable adjustments in standard assessments. One non-disability support staff participant was "not entirely convinced that we know how to or whether we should or how we should make allowances for problems in coursework" (Mike, maths-based academic, University B). He was also sceptical about some diagnoses of dyslexia. He said: "we've had cases and I'm not joking where students have suddenly developed some form of dyslexia just before they come up to their final examinations. You sometimes wonder to what extent it is a genuine problem" (*ibid.*). Whilst this was not an issue brought up by any other staff participants, Chapter 2 makes reference to an article by Taylor and Carter on the rationale of making adjustments for students who have dyslexia. As quoted in this earlier chapter, they assert that "while it may be comparatively straightforward to make appropriate adjustments for those students with a physical disability, it is more difficult and even controversial to make similar adjustments for students who have a 'learning disability'" (Taylor and Carter, date unknown, http://www.nottingham.ac.uk/academicsupport/adjustments/rationale.htm). Thus this is clearly a recognised problem, although it is suggested that it is one more likely to be raised by those who do not fully understand and adopt the social model of disability.

One non-disability support staff participant was concerned about making reasonable adjustments because he worried about what would happen to some disabled students once they went out into the workplace. He warned that it was necessary to think about:

> ... what is going to be fair to the students with additional needs themselves because at some stage those students have got to be let out into the real world either with or without help and they will be working in companies alongside other students who've graduated and I suppose that in fairness to those students that have been given additional help it needs to be such that they are well prepared to go out and fend for themselves, in a workplace that is also making reasonable

> adjustment but maybe not as much adjustment as education is making.
>
> *Tom, maths support tutor, University C.*

This issue was discussed in Chapter 2 where Taylor and Carter's explanation of the rationale behind making adjustments for students with dyslexia was discussed in more detail. They suggest that there is a difference between adjustments required in the "unreal situation of the examination" (Taylor and Carter, date unknown, http://www.nottingham.ac.uk/academicsupport/adjustments/rationale.htm) and those required in employment.

One disability support staff participant suggested that there are definite limits to what can be deemed to be reasonable, and suggests that this is precisely why the term is used in the legislation:

> I think the word was there as well because sometimes you're not going to be able to change something enough for a student to make it completely accessible ... I think 'reasonable' is a bit of an open term but I think it does need to be reasonable because you could get into the whole realms of knocking down an entire building for one student. ... But at the same time, who's making that judgement on it being reasonable? Ultimately it's the university. And then is it reasonable? And then really you've got to take it to someone suing the institution to find out whether something's reasonable. ... why would you? You're on a university course, how much time energy and money would that take. You'd have to be pushed so far.
>
> *Sarah, maths and disability support tutor, University C.*

Very few cases have been brought under SENDA 2001 to date, although one such case is described in Chapter 5 in relation to handouts in alternative formats. None of the post-16 education cases have made it to court; they have either been dropped or settled out of court. This means that the courts have still not had the opportunity to provide guidance to universities about what the law says is and is not reasonable.

4.4 Student perspectives

As was described in Chapter 3, the students who took part in my research fell into three categories: 1) students with visual impairments, 15 participants; 2) students who have dyslexia, five participants; and, 3) students with other impairments, one participant.

4.4.1 Disability

Only one student participant explicitly mentioned the Disability Discrimination Act definition of disability. He has a visual impairment and described disability as something that "impairs someone's ability to [do] most everyday tasks" (David, maths-based undergraduate, University A, blind). Another student participant with a visual impairment was aware of the "difference between the medical term disability, and the social term" (Scott, computing-based postgraduate, University B, blind). Whilst this knowledge of the legislation and theories of disability was widespread amongst the staff participants, Scott and David were alone amongst the student participants in using such terms, and David was the only one to mention impairment as something distinct from disability. It is impossible to say if the fact that they both have visual impairments is significant, but it is worth noting nonetheless.

Many of the student participants with visual impairments talked of someone who was "unable" (Jenny, social science-based undergraduate, University A, low vision), "can't work or perhaps ... can't do things" (Jim, psychology-based postgraduate, University A, blind), or "not 100 percent physically able" (Jenny, *ibid.*). They compared them to someone who could "perform as ... is generally required" (Jenny, *ibid.*), "the majority of people" (Jim, *ibid.*), "a normal person" (Paul, psychology-based postgraduate, University C, blind), or "an able bodied person" (Steve, science-based undergraduate, University D, low vision). The student participants who have dyslexia also talked of students who are "disadvantaged" (Carly, science-based undergraduate, University C, dyslexia) or have a "special need" (May, social science-based undergraduate, University D, dyslexia). These definitions are much closer those employed by the medical model than by the social model, using as they do words that suggest disabled people are in some way inferior to non-disabled people. These student participants used very personal language to describe what a disabled person is 'unable to do'. They did not refer to society being to blame in the way that staff participants tended to. Significantly though, they did not generally blame the individual either. One student participant with a visual impairment talked about "something beyond your control" (Steve, science-based undergraduate, University D, low vision) and another blamed "certain circumstances" (Jenny, social science-based undergraduate, University A, low vision) for disability.

One of the student participants who has dyslexia was not wholly comfortable with the language she found herself using. She corrected herself saying, "well I'd say compared to normal, but compared to someone else?" (Carly, science-based undergraduate, University C, dyslexia), recognising that to say 'normal' is to imply that the disabled person is in some way abnormal. Perhaps the nicest definition, however, came from another student participant who has dyslexia, who said, "not necessarily someone that's different just someone that's individual" (May, social science-based undergraduate, University D, dyslexia).

Some of the student participants got into discussions about whether or not dyslexia was a disability, as staff participants had done. One student participant with a visual impairment said he was unsure whether or not he would class dyslexia as a disability but felt that "it definitely needs consideration" (David, maths-based undergraduate, University A, blind). Another, who has dyslexia, felt that "when people hear the word disability they automatically think of someone in a wheelchair or someone with a severe need or something. But I think [dyslexia] is just an alternative learning need" (May, social science-based undergraduate, University D, dyslexia). After the recorder was turned off, she went on to say how she preferred to interpret the acronym SpLD as Specific Learning *Difference*, which fits with her explanation above of dyslexia as an 'alternative' way of learning.

Reasonable adjustments

As was highlighted in the previous section, discussions with student participants about their definitions of disability tended to involve fairly negative words, and reflect a medical rather than social model approach to disability. Encouragingly, however, they were a lot more positive about the term 'reasonable adjustments', although as with staff participants (see Section 4.3.2) they interpreted the question in different ways.

Some student participants answered in terms of what reasonable adjustments should be. They said they should be "suitable" and "adequate" (David, maths-based undergraduate, University A, blind), there should be "flexibility" (Carly, science-based undergraduate, University C, dyslexia) and they should "meet the needs of the student" (*ibid.*). They should be "fair" (May, social science-based undergraduate, University D, dyslexia) to disabled students and be something that "suits them" (*ibid.*) and something "they're happy with" (*ibid.*).

The only slightly negative view of what a reasonable adjustment should be came from one student participant with a visual impairment, Steve, who was generally very negative about being disabled. He said, "a reasonable adjustment would be something where an adjustment is made that in combination with effort from the individual, [...] a problem caused by the individual's disability could be overcome" (Steve, science-based undergraduate, University D, low vision). This comment, and others made during his interview, suggest that Steve feels in some way responsible for his disability, and as a result believes he has a responsibility to contribute to the adjustments made for him. Whilst discussions in Chapter 6 show that many students did decide to become actively involved in making adjustments in order to ensure they were the most effective they could be, Steve talked instead of the need to work harder whilst accepting that he still may not adequately overcome the barriers he faces. This is very much at odds with the way in which other students expressed their understanding of reasonable adjustments, and suggests his view is closer to a medical model understanding of disability.

Some student participants answered this question in terms of what the purpose of a reasonable adjustment is. One student participant with a visual impairment said the purpose of a reasonable adjustment is "to be able to put a student as close to, as she or he would be, a position in the university as a normal student would be" (Jenny, social science-based undergraduate, University A, low vision). This matches the legislation fairly closely. Another took a far broader view that reasonable adjustments are "basically anything that's been able to help me to carry out my course" (Simon, computing-based undergraduate, University B, blind). This very generous interpretation of what is reasonable suggests a social model perspective, as the point of reference is the student's needs rather than available resources.

Most student participants saw reasonable adjustments as something that they were entitled to because they were print disabled, and indeed most *were* entitled to such adjustments under the legislation. They did, however, recognise that there were limits. For example, one student participant with a visual impairment said that while it would not be reasonable to "redesign an existing building... Braille translation ... would be reasonable, [as would] trying to find alternative rooms if it was to do with a building being inaccessible" (David, maths-based undergraduate, University A, blind). Many student participants talked about financial constraints on what is reasonable. One student participant with a visual impairment said, "what's reasonable to one is not reasonable to another, depending on who's paying for it" (Scott, computing-based postgraduate, University B, blind). This is a sentiment shared by one of the staff participants in Section 4.3.2. He argued that, "that is the problem with disability laws in this country, [...] the clause, 'what is reasonable?'" (Scott, *ibid.*). Another student participant with a visual impairment spoke at length about what is reasonable:

> ... in terms of financial and practicality so to a reasonable degree they need to have things in place that enable you to do the studies. Well I suppose in extreme cases it would be impossible for them because they can't do them, or because it's too expensive.
>
> *Paul, psychology-based postgraduate, University C, blind.*

In answering this question, the student participants gave a lot of examples of types of reasonable adjustments that had been made for them, "Braille transcription" (David, maths-based undergraduate, University A, blind), "having a notetaker" (Jenny, social science-based undergraduate, University A, low vision), "translation services or other study support" (Jim, psychology-based postgraduate, University A, blind), access to "materials in the format that I need to access them" (Simon, computing-based undergraduate, University B, blind). The one student participant who did not fit into either of the first two categories as he was colour-blind, even talked about reasonable adjustments for other types of disability, "ramps for people with wheelchairs and induction loops for people with hearing aids" (Graham, computing-based postgraduate, University B, colour-blind).

4.5 Conclusion

While generalizations were inevitably made in Section 4.2 about the university perspectives and understandings of disability and reasonable adjustments display in their first DES, they are in fact made up of a large number of individuals with differing views, and policy documents such as these are an attempt reach and document a consensus. Each DES explains in general terms who had been involved in its production, and it can be assumed that these people influence the policy decisions that were made, but these will not be the only key players.

Whilst the content and intentions of these documents are generally consistent, it is clear from reading them that each DES has more than one author. In fact, in several cases it is apparent that sections have been added by 'cutting and pasting' from other documents as the tense and language used is not always consistent. It is noticeable that the use of terms such as 'disabled students' and 'students with a disability' is inconsistent, and some sections seem to more closely reflect the social model of disability than others.

It is suggested, on the basis of these 2006 DESs, that of the four universities studied, only University C fully embraces the social model of disability. The other three universities appear to be more closely aligned to the approach to disability used in the legislation. Interestingly though, it appears that the way in which a university understands the term disability does not necessarily correlate with how seriously it takes its responsibilities in terms of ensuring disability equality. University D appeared to be the most committed to this, despite adopting the approach suggested by the legislation rather than one suggested by the social model of disability.

There were a number of differences between the accounts provided by staff and student participants. Students tended to give much shorter definitions of both disability and reasonable adjustments than staff. Students also had a tendency to answer the question about how they understood the term reasonable adjustment in terms of adjustments that have been made for them personally. This may be due in part to the fact that those who struggled to answer the original question, and many did, were prompted to think of adjustments that had been made for them and whether they felt that these fit with their understanding of the term 'reasonable'.

It is clear therefore that whilst the student participants did not generally understand disability in a way that suggests a social model perspective, their understanding of reasonable adjustments did very much fit this model and this was also true of the universities. Except that is, for Steve (science-based undergraduate, University D, low vision) who seemed very much to take a medical model approach to disability and reasonable adjustments. For this reason, his account will be drawn upon in Chapter 6 to provide one example of a student participant who adopted a medical model approach to disability. He will be contrasted with Scott (computing-based postgraduate, University B, blind) and David, two students who clearly adopted a social model approach.

Generally speaking, staff seemed to understand disability and reasonable adjustments in terms of the social model of disability, although a few provided accounts that suggest they favour the less generous model adopted by the legislation. The one staff participant who displayed a perspective that could be suggestive of the medical model, was Mike (maths-based academic, University B). Susan (disability service adviser, University A) on the other hand, clearly understood disability in relation to the social model and interpreted the word reasonable very generously. She also recognized the potential discrepancy between her personal adherence to social model ideals, and the legislative approach she had to reflect in her work. Mike and Susan's accounts will be drawn upon in Chapter 6 to illustrate the contrasting perspectives of the medical and social models of disability.

It is therefore clear that it is impossible to state categorically which perspective each university or participant is most closely aligned with. It is possible, however, to make generalisations. These will be used in Chapter 6 to explore satisfaction levels and try to establish whether the perspective a participant has about disability bears any relation to their stated and apparent satisfaction levels.

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5. What are the issues involved in making and implementing adjustments?

5.1 Introduction

This chapter aims to address parts b) and c) of the research question:

- b) What adjustments are made for print disabled students and in what situations are they necessary?
- c) What problems arise with the implementation of adjustments?

It also aims to begin to address parts d) and e), which will be returned to in Chapter 6:

- d) How reasonable are the adjustments made?
- e) How satisfied are staff and students with these adjustments?

This chapter focuses on adjustments that are made for print disabled students as described not only by student respondents themselves but also by staff respondents involved in making these adjustments. It attempts to outline adjustments described by respondents, provide a rationale for these and explore the problems respondents highlighted with their implementation. It will also consider how reasonable these may be and provide examples of the few unreasonable adjustments respondents described.

This chapter is structured as follows. It begins by discussing how adjustments may be funded and considers the process by which needs are assessed and adjustments are recommended (Section 5.2). The four main categories of adjustments are then considered in turn: alterative formats (Section 5.3); non-medical helpers/disability support workers (Section 5.4); specialist equipment and assistive software (Section 5.5); and adjustments to teaching, self-directed study and assessments (Section 5.6). Other more general issues are considered in Section 5.7, including difficulties students experienced in getting the support they needed and problems staff faced due to lack of resources. Section 5.8 then outlines the three examples of unreasonable adjustments that respondents gave.

5.2 Funding adjustments and assessing needs

Although some adjustments can be made for free or without incurring any significant cost, many adjustments are expensive and a range of funding is available to both institutions and individual students (see Chapter 1). Funding for institutions was not something respondents talked about in any great detail, and so this section focuses primarily on funding for individual students. Respondents explained that for an institution to make adjustments, and for students to be eligible to apply for funding to meet the costs of these, students first have to provide evidence that they are disabled (see Section 5.2.1). Several respondents expressed concern about the medical nature of the evidence required, and how this may conflict with the models of disability used by the institutions themselves or in the legislation. This is discussed at length in Section 5.2.1.1. Most student respondents were in receipt of Disabled Student's Allowance (DSA), and had undergone Study Aids and Strategies Assessments that had resulted in recommendations of adjustments (see Section 5.2.2). Respondents also talked about additional sources of funding such as the Access to Learning Fund (ALF), as well as funding options for disabled international students (see Section 5.2.3). Respondents also discussed universities' obligations to provide equipment for some students, and the difficulties they had had meeting these obligations (see Section 5.2.4).

5.2.1 Providing evidence

Before students can receive any adjustments under SENDA 2001 or DDA 2005, they must provide evidence that they are disabled according to the definitions used by the DDA 2005. Respondents' accounts suggest exact details regarding who must provide this and the level of detail required varied from one university to the next and often depended on the funding body concerned. This evidence was not always the same as the evidence students required in order to apply for DSA. As the majority of students, including those interviewed, were eligible for DSA, it is not surprising that respondents talked predominately about the evidence required in order to apply for this. Both staff and student respondents described how this evidence has to take the form of either written evidence from a medical professional, or, in the case of students with SpLDs, an Educational Psychologists' Report. At the time fieldwork was carried out, many students were required to provide not only evidence of the nature and severity of their disability, but also a statement of the impact it has on their studies. Educational Psychologists are trained to provide this, but medical professionals are not.

5.2.1.1 Difficulties with medical evidence

Respondents explained that the provision of suitable medical evidence is potentially problematic, as medical professionals are naturally experts in the medical aspects of impairment. They are less likely to understand, and be in a position to comment on, the way in which impairments become disabilities as defined by the social model. Medical professionals may be able to make the statement that 'patient x has a detached retina which has left her with limited vision', for example. They may be able to test her vision to determine that she cannot read print at all. It is unclear, however, how it follows that they are qualified to state the effect on her studies. To do so presupposes that they not only fully understand how this impairment effects their patient, but also that they are familiar with the nature of her studies and the requirements of her discipline. More than that, it also presupposes that they understand the social model of disability well enough to recognise the myriad of ways in which the higher education setting may be disabling and appreciate the legislative obligation to make 'reasonable' adjustments.

Some respondents complained that the requirement for medical evidence forces them to accept the medical model of disability. They complained that the initial focus is on a medical evaluation of impairment and how this impairment may affect performance in higher education. Taking a social model perspective would instead involve a consideration of how the higher education setting turns an impairment into a disability, and what adjustments can be made to reduce the level of disablement experienced, or even prevent it altogether. This is the purpose of a needs assessment, and the way in which some staff respondents felt their work was negatively affected by this are discussed below (see Section 5.2.2).

5.2.2 The DSA 'Study Aids and Strategies Assessment'

Students who are eligible for DSA and whose medical evidence has been judged suitable will generally be referred for a 'Study Aids and Strategies Assessment', commonly called a 'needs assessment'. This will be carried out in an Assessment Centre and consists of a meeting between at least one trained assessor and a student (NNAC Website, 2010).

Many of the disability support staff respondents were also trained assessors and explained how a needs assessment works. They described this meeting as an opportunity to discuss the following issues: students' impairments/disabilities; any previous adjustments they may have experienced in the educational or work setting; how effective these adjustments may have been; and, how well these or other adjustments might work in terms of the student's current studies. If students have not received any adjustments before, or if they have not been wholly effective, assessors are able to suggest alternatives. Some said they may be able to give students the chance to try out equipment and software depending on their needs and what the Assessment Centre has available.

Disability support staff respondents explained how they take a very student centred approach. One described this as starting with "the problem and coming up with a solution" (Jackie, alternative formats manager and disability service adviser, University B). Another said she felt the purpose of the needs assessment was to create a "level playing field" (Karen, disability service adviser, University C). This was a sentiment shared by many staff and students who took part in this study, and demonstrates a very generous approach to what is reasonable. A less generous approach would involve starting from the point of what adjustments the institution can easily make and what funding is available, and then mapping these to students' needs. This was, however, in no way the approach that staff respondents described.

They commonly said that whilst their recommendations are often based on the adjustments students have received previously, they always discuss the effectiveness of these with students rather than automatically assuming them to be the right ones to recommend again. Several staff respondents pointed to cases where adjustments had not been suitable or were not effective at overcoming a barrier. For example, one described how students often say to her they have had "materials enlarged to A3 [using a photocopier] throughout their schooling but when you ask if that is how they like them, they'll say, 'No, I'd much prefer my preferred print size on A4 paper'" (Susan, disability service adviser, University A). Another disability support staff respondent agreed with this, explaining that "the nature of mainstream education is that quite often people haven't had half of what they should have had" (Karen, disability service adviser, University C).

This is perhaps because although parts of SENDA 2001 also apply to pre-16 education, the requirements and terminology used is very different. During compulsory education, pupils who have a learning difficulty or disability that affects their progress at school are said to have "special educational needs" (Department for Children, Schools and Families, 2009, p.6) and are likely to be "given extra or different help from that given to other children of the same age" (*ibid.*). If the pupil does not require extra resources (such as staff time or equipment), and their current school can deal with their needs, the pupil's teacher may produce a written Individual Learning Plan (ILP) (*ibid*, p.12). Where extra resources are required or the current school cannot deal with their needs, pupils may require "a statutory assessment" (*ibid*, p.17) and a "statement of special educational needs" (*ibid*, p.17). As with the sections of SENDA 2001 that govern post-16 education, this approach, and the terminology used, focuses on the problem with the individual, in this case a pupil's 'special educational needs'. One redeeming feature of pre-16 provision, however, is that it is not necessary for pupils or their parents to apply for special funding. Instead is the Local Education Authority's responsibility to ensure that the chosen school (be this mainstream or specialist, maintained, non-maintained or independent) can meet the pupil's needs. How well these needs are met is beyond the scope of my research, but pre-16 provision was criticised by several respondents (see Chapter 5). They complained that it often did not properly meet the pupil's needs or prepare them adequately for post-16 education.

Indeed, the results of research by UK Aim Higher South Yorkshire (Madriaga, 2007) revealed that students, as well as their parents and their higher education tutors, were generally disappointed with their pre-16 schooling:

> Tutors (in many instances) did not take positive steps to ensure that disabled students acquired equal access to learning. Moreover, tutors did not envision student respondents excelling academically and pursuing higher education. The action or

> inaction of school tutors has impacted on the attitudes and confidence of the respondents' pursuit of higher education.
>
> *Madriaga, 2007, pp.403-4*

In addition to their poor experiences in compulsory education, Madriaga reported that some students also experience disablism and discrimination at further education levels too, which often continues into higher education. Unfortunately, "disappointment in university lecturers mirrored sentiments expressed about school and further education tutors" (Madriaga, 2007, p.408). An exploration of this is beyond the remit of this thesis, but the possibility of student respondents having had previous negative experiences of adjustments in education must be borne in mind when considering their perceptions of adjustments in higher education.

Staff respondents detailed recommendations for specialist equipment and assistive software (discussed further in Section 5.5) that they commonly make as assessors. These usually include a computer of some sort for students' home use and assistive software. Assistive software commonly used by respondents includes: screen readers which allow speech access to screen content, e.g. JAWS; text readers which provide speech access to electronic materials, e.g. TextHelp Read and Write; screen magnifiers, e.g. Lunar; combined screen readers and magnifiers, e.g. SuperNova; mind-mapping software, e.g. Inspiration; and, voice recognition software, e.g. Dragon Naturally Speaking. If students require the use of standard software available on university computers on their own computers, such as Microsoft Word, respondents explained they may recommend this as well. They may also recommend other equipment such as CCTV viewers and digital recorders, and sundry items such as toner cartridges and coloured paper. Assessors also make recommendations in relation to the provision of alternative formats (see Section 5.3) and non-medical helpers (see Section 5.4), as well as adjustments to teaching, self-directed study and assessments (see Section 5.6).

A few staff respondents said they sometimes recommend more than one adjustment to overcome a particular barrier. For example, when a student had difficult taking notes in lectures, one respondent recommended a notetaker, a recording device and copies of lecture notes in advance because she felt that a "variety" of methods were needed (Karen, disability service adviser, University C). This is interesting because using a narrow definition of 'reasonable', it would be possible to argue that this approach is too expensive and therefore overgenerous. All of the staff respondents involved in needs assessments emphasised however that what was needed was an "individual approach" (Karen, disability service adviser, University C) which considers the impact that "*their* disability has on *their* studies" (Jackie, disability service adviser, University B, emphasis added). Time and time again they emphasised that no two students are the same and they all have different needs.

Staff respondents explained that needs assessments culminate in a written report, officially called a "Study Aids and Study Strategies Report" but generally referred to as a 'needs assessment report' (NNAC Website, 2008). They described this report as providing specific recommendations equipment, software, sundry items and non-medical helpers that should be funded, as well as quotations from several suppliers for these. This report also contains recommendations about other adjustments students' universities should consider making. These include adjustments to teaching and assessment such as providing handouts in advance and allowing extra time in examinations. Staff respondents explained that this report also often provides justifications for their recommendations and explanations of the rationale for making particular adjustments. It was clear from their accounts that the reports served two purposes; to request funding be provided for certain items and to outline a package of support to enable students to meet the demands of their courses.

Staff respondents were generally positive about needs assessments. Their explanations about the format and purpose of these suggest a social model approach (apart from the difficulties with medical evidence discussed below). This is also evidenced by the comprehensive nature of the recommendations they describe making. They clearly believe needs assessments should be student focused, and to this end the adjustments they recommend are clearly based on a generous interpretation of what is reasonable. Student respondents rarely had complaints to make about their own needs assessments, except for the two whose experiences are discussed in Section 5.2.2.2.

5.2.2.1 Problems caused by medical evidence

As was noted above, several disability support staff respondents who worked as assessors described how they were expected to use the medical evidence or Educational Psychologist's Reports as a starting point during the needs assessment. One such respondent described this as a "question and answer session" (Susan, disability service adviser, University A) but complained that because of the need to provide evidence it was very "medically led" (*Ibid.*). This respondent had a wealth of experience handling DSA applications and carrying out needs assessments, and spoke of the danger of medical professionals exceeding their area of expertise. She said she had experienced problems when medical evidence had been too specific about affect on study or recommended particular adjustments, especially in terms of equipment or software. In such cases, she had found that funding bodies tended to assume that this was all that was required and turn down any further recommendations made during a needs assessment. She was therefore very wary of the requirement for medical evidence to include comments on impact on study.

5.2.2.2 Problems with some recommendations

Although staff respondents who worked as assessors indicated that their recommendations must follow broad guidelines, they emphasised that the specifics of each report are very important and much individualised. Generally student respondents were in agreement with this and described their needs assessments as useful and positive experiences, but there were two notable exceptions. One had not yet had her needs assessment but had been told that the item she felt would be most useful to her, a whiteboard, was not on the standard 'list' of items that could be purchased from DSAs. She complained that:

> They buy you all this fancy software but I just want a whiteboard. [...] I find it so much easier to use a whiteboard than anything else and it'd be cheaper for them to buy me a whiteboard than computer software but apparently that's not on the list.
>
> *Emily, psychology-based undergraduate, University D, dyslexia*

She may have been given incorrect information, and even if not it may be that when she actually had her assessment her assessor was able to make a case for this in her needs assessment report. The information she had been given does not fit comfortably, however, with the student centred approach described above. If true, she would be denied an adjustment she knew herself to be useful in favour of a more expensive solution that she did not want. It is not known what happened when she later had her needs assessment. It is possible the assessor was able to show her the advantages of the software over a whiteboard, but at the time of interview she was quite apprehensive about the idea of attending it.

Another also had a negative experience in relation to his needs assessment. One of the recommendations made was for software to display notes taken on his notetaker's laptop on his own laptop screen in real time. His notetaker would be copying from the board, which was too far away for him to see, and this would enable him to follow the lecture more easily. As he was taking a science-based course, however, very few notes could be made using his notetaker's laptop as the majority of the content was graphical. He complained that this software was:

> ... totally inappropriate because if you take all the words from an hour lecture you'll probably have about an A4 page worth of words but four pages of [graphical] stuff. [...] And the thing was that later in my DSA I wanted to get a more powerful computer [...] but there wasn't enough [money left, so] I couldn't get as powerful [a computer] as I would have liked because I wasted 300 quid on this stupid piece of software.
>
> *Steve, science-based undergraduate, University D, low vision.*

His experience highlights a potential problem with having to make adjustments within a limited budget, as this error effected the equipment he was able to purchase later. Whilst his budget could clearly have been better managed, the limits imposed did cause problems for several student respondents. They told of DSA budgets being exceeded and as the next section describes some staff and student respondents had to seek alternative funding to meet the extra costs of making adjustments.

5.2.3 Other sources of funding

If students are not eligible for DSA, if their DSA budget is not sufficient to meet all their study-related costs, or if their disability leads to costs that are not covered by DSA, there are some alternative forms of funding. This issue was discussed at length with one disability support staff respondent who had worked with two students who required additional funding. One of her students had dyslexia in addition to a medical condition that reduced his mobility, whilst the other was blind. She explained that the costs of providing for these "high support needs" could be "part-funded for any shortfall, within reason" (Rachel, disability service adviser, University D) through the Access to Learning Fund (ALF) (discussed further in Chapter 1). Another from University A also mentioned using the ALF for "things that cannot be funded through the DSA" (Susan, a disability service adviser, University A) so this does not appear to be an isolated case.

Respondents' accounts suggest that ALF is often allocated differently by different universities. For example, some carry out means testing on all applicants, whereas others do not require this where a student is applying for costs not covered by DSA. One disability support staff respondent explained that at University D:

> ... there is some level of means testing ... [There is] a lot of discretion with the ALF fund and it's really to make sure they're not over-funding students who really have got some additional funding, but that's so unlikely to happen. [...] There are a lot of disabled students who get ALF funding, either for support or, for example, personal care support that might not be covered necessarily through social services or the Disability Living Allowance [DLA], or other things like that, travel costs and things like that that aren't otherwise covered.
>
> *Rachel, disability service adviser, University D.*

It seems that it is therefore possible that students may in effect be means-tested for funding to provide support that would be provided through DSA if the maximum allowance was higher. Setting a tight budget, even for students with complex or multiple disabilities, suggests a less generous approach to what is reasonable. Increasing this for such students would ensure that none face means-testing for funding for adjustments and would seem to fit a more generous approach to what is reasonable.

Staff respondents explained that International students are expected, on the whole, to fund their own support, either themselves or via their sponsors. A disability support staff respondent explained that at University

D disabled international students are required to ensure they have their own funding in place before starting a course. Students who develop a disability during their course are offered some limited funding, but only for the current academic year. They are expected to find their own funding before the start of the next academic year (Rachel, disability service adviser, University D). The possible impact of funding limitations on disabled international students is beyond the remit of my research, but Soorenian explains that "there are no available specific grants for disabled international students to meet their impairment related costs. They are only allowed to remain in the UK with the condition that they make no recourse to public funds including such welfare benefits as DSA, and therefore they have to rely on the discretion of their university" (Soorenian, A, 2006).

In addition to the individual funding mentioned above, the same respondent explained that University D also has a special central fund to allow departments to "make their courses accessible" (Rachel, disability service adviser, University D). None of the staff at the other universities studied mentioned a similar central fund for their departments. A few mentioned specific equipment that had been purchased for their disabled students, although the funding source was not revealed. It is possible that this was purchased from the HEFCE funding several staff respondents said was available for home students. One staff respondent also mentioned that University C had some money "in the pot" (Karen, disability service adviser, University C) for students who are not eligible for DSAs, including international students who are not eligible for HEFCE funding.

5.2.4 Universities' obligations

Most of the students who took part in this study or were mentioned by staff respondents had funding for specific equipment to use at home. This does not mean, however, that their universities do not still have an obligation to provide equipment for them to use on campus. Many of the student respondents said they sometimes need to use computers on campus, especially in sessions where computer work is involved. By providing this universities also make things easier for students who do not have funding for equipment (including international students) and potentially for those who have not disclosed their disability. This equipment is particularly important for postgraduate students since it is normal for them to have offices on campus to work from and to use computers provided by their universities. Interviews suggested, however, that provision varied from university to university, and sometimes even from department to department.

5.2.4.1 Problems meeting these obligations

Provision of specialist equipment and software at University A was generally good, but individual staff experiences of arranging it were rather mixed. Some DDOs said they had tried to make computers in their departments accessible, with varying success. One said that she had "made sure that one of the computers downstairs is accessible, and it can be set up for an individual student to have their own log-on and go straight in" (Elma, education-based DDO, University A). Another had encountered problems when she had wanted to make all, or at least some, of the computers in her department accessible. A colleague from the university's IT department told her she could not have specialist software installed for students with dyslexia and visual impairments because "it would be extremely difficult to do" (Jessie, DDO, psychology-based, University A). In this case the problem was partly an institutional one as not all the computers had a good enough specification to run this software. Another problem was that one piece of software she requested, a screen reader called JAWS, cannot be purchased with a university wide licence and individual licences were felt to be too expensive. The response she was given was clearly that in this case it was felt it was unreasonable, in terms of cost, to upgrade all the computers and purchase individual licences. Instead it may have been more reasonable to upgrade and provide licences for a proportion of the computers available, and this seems to be the approach many of the universities had taken.

It was clear from interviews with other staff respondents at University A that funds had been found to provide some specialist software on a wider scale. A staff respondent responsible for library and IT facilities stated that mind-mapping software had recently been put on the university network, and that they now had licenses to allow a small number of students at a time to run a screen magnification program via the network. She also said that University A provides specialist equipment and software in a few bookable rooms (Melanie, Library and IT Manager, University A).

The problems experienced at University A were not isolated ones as staff respondents at the other three universities also said they experienced similar problems. It is obvious that all four universities studied made efforts to provide suitable equipment and software for print disabled students, but that funding was a thorny issue. The provision of equipment by universities was not an area, however, which student respondents in this study discussed in any great length. It is impossible to say if this means that they were satisfied with it, or if they were so dissatisfied that they decided not to use it.

5.3 Alternative formats

As was discussed in Chapter 2, many print disabled people are unable to access materials in standard formats, and require them to be provided in more accessible formats. As many documents are not automatically available in an accessible format, it is often necessary to convert these to 'alternative formats' and this process is called 'transcription'. Examples of alternative formats include: Braille, large print, audio and electronic format. Many print disabled people have a specially tailored format they find easiest to access, known as their 'preferred format'. This is generally true of the student respondents and all four of the universities studied were involved in producing materials in these formats. Regardless of their preferred format, print disabled people, including the students who took part in this research, say they often access materials in a variety of different formats. This may depend upon the accessibility of formats already available, the content of the material, the timescale they are working to, and what the materials are needed for. For example, a person may be happy to access novels in audio format but prefer course materials in Braille. A generous interpretation of what is reasonable, would require that, as far as possible, print disabled students are provided with the format they feel best suits their needs, rather than one that is easy or cheap to produce. A less generous interpretation would require students to find ways to adapt in order to access the formats that are already available.

If the needs of print disabled people are considered when materials are designed even standard formats can be made more accessible. For example, printed materials can be made easier to read by using a format called 'clear print' (which improves readability) and electronic formats can be designed to be accessible using screen readers and other assistive technology. Changing the way materials are produced, structured or stored may mean that some people no longer require them to be transcribed. It also often means that, should it still be required, transcription is much easier and quicker. Another way of improving access to materials is to produce documents in a variety of formats rather than only in standard-format print. It should be recognised, however, that some people will still require materials to be transcribed into their specific preferred format.

In reality, the most materials are produced in one standard format and this format is often fairly inaccessible. Thus it is frequently necessary to transcribe materials. In order to understand what is involved in transcribing materials, and to appreciate how creating more accessible materials from the outset may reduce this task, it is perhaps necessary to start by explaining the main types of alternative formats.

5.3.1 Main types of alternative format

Braille

Braille is a method of accessing written information using the fingers to feel raised dots. It may be found on items such as lift buttons or medicine bottles but generally it is produced on paper using a computer and a Braille embosser (which acts like a printer for Braille) or on a Perkins Brailler which looks a lot like a typewriter. It may also be created on a Braille display, a device that attaches to a computer and consists of movable pins that represent changes on the computer screen.

Braille is produced in 'cells' of six or eight dots depending on the system used. The former gives 64 possible combinations, the latter 256 (including the blank cell that contains no dots at all). Braille characters represent not only the letters of the alphabet a-z but also punctuation. There are not enough possible combinations to represent everything so often modifiers are needed. For example, the numbers 1-9 and 0 are represented by the letters a-j preceded by a 'number' modifier. It is also necessary to use extra Braille characters to indicate changes in text formatting, such as bold, italic or underlining, causing Braille to use significantly more characters than its text equivalent. To combat this, contractions are used for commonly used combinations of letters, for example, one Braille character means "th" which in some contexts also means "the". This is similar to shorthand.

Large print

Although many people attempt to produce large print by simply enlarging documents on a photocopier, this is fairly inappropriate and is little better than the results that can be achieved using a handheld magnifier. Producing *easily readable* large print often involves changing the font size, style, text formatting, layout, spacing and colour. It may also involve printing on coloured paper, often pastel shades.

Electronic format

Some print disabled prefer materials in electronic format, and most read these using a screen-reader or text-reader, or a Braille display. Others enlarge the screen content using a screen magnifier or by enlarging the font. This is not always the case however, and the most potent example of print disability described in this research related to a physically disabled student supported by one of the disability support staff respondents. She explained that the student has perfect vision and does not have dyslexia, but cannot read printed materials as he is paralysed and cannot turn the page. Instead, he requires electronic texts that he can view on screen and selects pages using assistive technology (Jackie, alternative formats manager and disability service adviser, University B).

Electronic texts that are to be read by a screen-reader (or text reader) are usually best provided as either a Microsoft Word document (the accessibility of other word-processing packages varies greatly), or as plain or rich-text word-processing formats since these are easier for screen readers to interact with. For Standard English text, PDF (Portable Document Format) files may be accessible but it depends when and how they were produced (for a discussion of this see JISC TechDis, 2007a). It is also becoming common to provide text as a Digital Accessible Information SYstem (DAISY) book (see http://www.daisy.org).

Audio

Audio formats are usually recordings of materials read aloud by a human reader, and are often referred to as audio books. These may be provided on CD (including DAISY CD) or cassette, or downloaded from the internet.

Professional recordings are often available from organizations such as RNIB, local libraries, or even bookshops, but many are abridged versions and fiction titles are most common. Some universities do make recordings of course materials for students, but as none of the students who took part in this study used these they are not discussed in detail in this thesis.

5.3.2 Producing alternative formats

Staff respondents outlined five requirements that are necessary for successful transcription:

1) Advance notice of the material to be transcribed (i.e. knowing what needs to be produced and when for);
2) Provision of that material, preferably in editable electronic format;
3) A reliable method of transcribing the material;
4) Sufficient time to transcribe the material;
5) Ideally, time and ability to carry out proofreading of the transcribed material.

Respondents' accounts suggest that the provision of accessible or alternative format materials is the most valuable adjustment for many print disabled students, yet it is also the most problematic one to implement. The process of transcribing Standard English text (i.e. the characters available on a standard UK computer keyboard) is technically fairly straightforward and Chapter 2 contains references to several documents providing guidance on this. Several respondents explained, however, that materials containing non-standard English, such as foreign languages, mathematical notation and graphics, are much more problematic. Particular difficulties were experienced by the five Braille readers whose courses contained a large about of mathematics. This is because mathematical notation is two dimensional in nature and Braille is essentially linear. The specific difficulties they encountered, however, are beyond the remit of this thesis.

Regardless of content type, respondents explained that difficulties with transcription were experienced in relation to all five of the requirements, albeit to differing degrees. Only the first two are discussed in detail below as these are the ones respondents identified the most significant problems with.

5.3.2.1 Requirement one: advance notice of the material to be transcribed

This advance notice of material to be transcribed generally needs to be provided by academics teaching print disabled students as they generally determine which materials students should read. They often provide students with reading lists detailing materials required and copies of lecture notes or materials to be used in sessions. Research students or taught students completing self-determined projects would not normally have access to reading lists, but academics may still be asked to provide guidance in regard to useful materials to reduce delays transcribing these. Students or academics may also be aware that access is required to other university produced materials and where this is the case the alternative formats service will also need to be notified of these.

Respondents explained that reading lists (see Section 5.6.1.1), lecture notes and other lecture materials (see Section 5.6.1.2) are often requested directly from academics, but these are now often available to download from the University's Virtual Learning Environment (VLE). All four of the universities studied had some form of VLE that could be used to store electronic copies of materials, but respondents said that the amount of material that is placed there varies greatly. As a result, several staff respondents said it is still necessary to contact academics directly in order to gain access to materials in advance. There were varying reasons for this; either because their materials were not available electronically (e.g. they only had hardcopies), they were not accessible (e.g. they were handwritten or were saved as PDF files containing mathematical notation or graphics), or because they choose not place materials on the VLEs in advance or at all.

5.3.2.2 Requirement two: obtaining the original material

Respondents explained that the process and difficulty of obtaining original materials depends, in part, on whether these are produced by the student's university or by external bodies such as publishers.

University produced materials

A few staff respondents described how some departments made it easier to obtain university produced materials in advance by creating documents with accessibility in mind and storing electronic copies of these, generally in an accessible format. It was not only materials required for lectures that the universities' studied tried to make available in advance. At University A, the production and storage of library materials such as leaflets had been overhauled to increase accessibility. One non-disability support related respondent described how the software previously used to produce materials created electronic copies inaccessible to screen readers and unsuitable for transcription. The software was changed and staff are now encouraged "to make sure things are available more electronically" (Melanie, library and IT manager, University A).

Some services and departments had attempted to make *all* of their materials available online to *all* students. This is a general anticipatory adjustment, and as is noted by Healey *et al.* (2006) in Chapter 2 such adjustments generally benefit all students. Some academic departments were reluctant do this as they were concerned that students would rely on these and choose not to attend the sessions. One disability support staff related respondent said this was a particular concern for her department:

> Well, in terms of anticipatory [adjustments], we have got ... almost all our materials electronically stored and we've sent those to some dyslexic students in advance of courses. We don't have them on our website and freely available in that form at the moment, although that's something we are considering. We've not done it historically because we feel that - and this may be right [or] wrong - ... that if they were [online] a lot of students would just look at them and say, "Well, I've had these materials and I won't come [to the lectures]". And we think that there's an added value in being part of the course.
>
> *Abbey, education-based DDO, University A.*

As more universities opt to provide lecture materials online in advance, it will become apparent whether or not students are in fact choosing not to attend lectures but to read the accompanying materials instead. On the whole staff respondents felt that there was no reason to suppose that this would happen. Several commented that university lectures should be more than an instructor reading out lecture materials and should always aim to provide added benefit to students. As a result, they believe that if students choose not to attend lectures and rely on lecture materials alone, they will be the ones to lose out.

Many student respondents said academic staff provided them with lecture materials individually, or made them available on VLEs or websites for all students. In these cases student respondents said that if the materials were accessible they did not always require them to be transcribed.

Externally produced materials

As outlined above, producing alternative formats is generally reliant on having some form of editable electronic text to work with. The cheapest way of getting this is to approach publishers for an electronic copy, but unfortunately they are not always able to provide this. For example, one student respondent said that "we asked the publishers about an electronic copy and all they could provide was in 'postscript format' which is [...] of no use for Braille transcription" (David, maths-based undergraduate, University A, blind).

The student respondents said they find this difficult because it often results in long delays. One said:

> [It] takes so so long from your initial email to the publisher to the final point where you get something back from them even if it's saying "no we can't give it to you", even then, I have never come across a case where it has taken us less than two weeks, I would say. Never. And I think the longest one was I'm sure it was more than six or seven months from start to finish.
>
> *Paul, psychology-based postgraduate, University C, blind.*

Some publishers are reluctant to provide copies because they worry about them being misused, but the same student said that copyright can be "guaranteed in other ways whilst still giving us accessibility" (Paul, *ibid.*). Another potential problem is that publishers tend to assume that any type of electronic format is accessible to print disabled students. The same student pointed out that this is not necessarily the case:

> ... they encode or they encrypt their files in a way so that it will be specifically hard to, for example, copy and paste, which is reasonable because you don't want people to copy and paste your content of your book into Word or into web page [but] that

> is the work that the screen reader has to go through to get hold of the text that's on the screen. [...] If it is encoded or encrypted or blocked then you get nothing totally out of it.
>
> *Paul, ibid.*

This means that when students or staff ask for a book from a publisher they are often met with the response that it is available as an eBook, but these are not necessary accessible. Respondents complained that when they request an electronic copy, publishers often provide PDF files which *may sometimes* be suitable for Standard English text, but are not at all helpful if they contain graphics or mathematics as this information is lost when converted into editable format.

Staff respondents said that when they approach publishers they get varying responses. The length of time it takes to provide materials and the format in which they are provided varies, as does whether the publisher requires a fee and how much this costs. One disability support staff respondent said:

> ...it's the publisher who will also determine how long it takes. I think that some are a lot better than others and some require the student to actually buy the book and send them proof of purchase and sometimes if we've got maybe a few copies in the library they'll be prepared to provide it without the book having to be bought again.
>
> *Lizzie, disability service advisor, University B.*

Respondents reported that they are often told that a publisher cannot provide an electronic copy at all as it does not have one. Some student and staff respondents questioned this, suggesting that original submissions will have been made electronically. Publishers explain, however, that although a manuscript may be submitted in a suitable formats (e.g. Word or LaTeX) this is usually edited and typeset into an inaccessible format before being converted to a final PDF version, which may or may not be accessible (Publisher Lookup UK website, 2009).

Several student respondents said they often tried to obtain copies of the original manuscript from publishers. Others said they had taken to approaching authors directly as they usually had a better response from them. Two of the student respondents said:

> I just email the author and say I'm blind, would you mind emailing it and they usually email it straight away. ...if you say 'I just want this chapter' they tend to reply. If you're nice about them and say you really like their work and you want to use their theory or whatever.
>
> *Paul, psychology-based postgraduate, University C, blind.*

> I try to find contact details for the authors themselves so you try to write a convincing email saying you know this is my situation this is- ... "I'm really sorry to trouble you with this. This is the experience that I would get if I was going to go through the publisher. Can you help me in any way? Do you have at least a contact for example of a publisher who has to be in some way helpful or speedy in their reply? Or something like that?" And most people are compassionate and they will send you [...] what you are asking for.
>
> *Richard, computing-based undergraduate, University D, blind.*

Clearly the original copy submitted by authors may well differ from the final copy in significant ways. This may not be a problem for many students, but it can cause potential problems for others in terms of referencing the materials they have cited.

This issue of publishers being unable to provide accessible electronic versions of materials is a non-institutional barrier as publishers produce books and journals for everyone in society. Publishers are not subject to the SENDA legislation; instead they are covered by the DDA 1995 which does not require them to provide accessible versions of any sort. The Copyright (Visually Impaired Persons) Act 2002, however, allows accessible versions to be made for those with visual impairments and the Copyright Licensing Agency (CLA) Photocopying and Scanning Licence allows universities to make accessible copies of materials print disabled people provided they own an original copy of the publication. (This has been updated further since fieldwork has been completed).

This is a removable, non-institutional barrier, as publishers could endeavour to produce and store accessible electronic versions of their publications, and some do, but the issue is one of resources. The resources needed to produce an accessible electronic copy depend on how the original manuscript was submitted and how many editing and typesetting changes have been made since then. As a result, most publishers argue that it is unreasonable (both in a legal and more general sense) for them to produce and provide an accessible electronic - or other alternative format - version. Some publishers have sought other ways to reduce the difficulties print disabled people have accessing their publications.

Since the data was collected for this research, two new resources have become available. One of these is the Publisher Lookup UK website which provides details of who to contact at each publisher if you are seeking an electronic version. There are two caveats however, only publishers who have submitted their details are listed, and their details may not be up-to-date unless they have advised the service of any changes. This service is a collaboration between JISC TechDis and the Publishers Association and only lists UK based publishers. (For US based publishers the unrelated site http://www.publisherlookup.com is available.)

A related resource is the JISC TechDis online "Guide to Obtaining Textbooks in alternative formats" (JISC TechDis, 2008, online) which advises university staff on what to ask publishers for and how to find out whom to ask for it from. It advises that "publishers cannot normally supply a Microsoft® Word version of a book since this format usually disappears at an early stage of the production cycle - specifically ask for a PDF version." (*ibid.*). It recognises, however, that not all PDF files are accessible, "you need to ensure the PDF has selectable text - some PDFs do not contain selectable text but merely an image of text characters. This is incompatible with most assistive technologies. The PDF from the publisher may have limited inbuilt accessibility (e.g. no structural navigation, unreliable reading order, no ALT tags *etc.*). These accessibility benefits may need to be added locally" (*ibid.*). It also points out that PDF files are only useful for Standard English text, "it can be straightforward to make text accessible by adding heading structures where appropriate. It can be more challenging to provide suitable descriptions for images. It is yet more difficult to provide access to scientific notation, mathematics and formulae" (*ibid.*). It also says that books published prior to 2000 are unlikely to be available in electronic format, but most published since 2003 should be. The information in this guide may only be helpful in relation to obtaining certain types of materials (i.e. those that are primarily standard English text) that have been published in the last 9 years or so, but it does go some way towards addressing some of the concerns raised by my respondents.

What many respondents said would be useful was a central repository of electronic versions of ALL books currently available in electronic formats so that they do not have to try to identify the correct contact at each publisher and then wait for them to try to source an electronic format. One disability support staff respondent said:

> I think [that in the US they] have a central repository for any new books that are issued, so that anyone can access them from within the US. We haven't got such a system here. It seems amazing in the age of electronic publishing.
>
> *Colin, alternative formats manager, University C.*

A repository of *all* books does not currently exist in the UK, but there are some repositories, or at least directories, of electronic formats of *some* books. One of these is BookShare, which is based in the US but does have some books available to those with qualifying disabilities who live in the UK. Most books are only available to paying members however.

Alternatively, the RNIB National Library Service loans out reference books, music and maps in alternative formats (free of charge to eligible readers) and has a catalogue of over 40,000 titles. The RNIB also has a paid for Talking Books service which loans out books in DAISY format. Its focus is on fiction and general interest titles, and requires a paid subscription.

5.3.2.3 Other issues with transcription

If materials are not available in a suitable format for transcription, it is necessary to produce these using the formats that are available. Some materials are available as PDF files, and although these have become a lot more accessible to screen-readers in recent years, it is not possible to automatically turn these into large print or Braille. There are now various pieces of software available to turn PDF files into editable text, but many suffer from the same limitations described below in relation to OCR software.

Information available in html format is usually accessible to screen-readers, but may need to be converted into editable text to produce large print or Braille. This can often be done fairly easily by cutting and pasting it into a word processing package.

If these methods are not possible, it is usually necessary to take a printed copy of the text and process it using a flatbed scanner and an Optical Character Recognition (OCR) program. This is the most error prone method as problems may occur at two stages: the scanning stage (e.g. dirt on the scanner glass distorts text) or the OCR stage (e.g. text is not properly recognised and converted).

If an editable electronic format has been produced from an inaccessible one it is likely that it will be necessary to proofread the text produced (or at the very least selections of it) to check that it is true to the original. Errors are often made by conversion programs, scanners and OCR software, and are not always picked up by spellchecker software. For example, the author found that her texts often contained errors such as 'modern' becoming 'modem', 'and' becoming 'arid', and 'he' and 'be' being used interchangeably.

In most cases it is also necessary to ensure that the student can identify the original page or PowerPoint slide numbers from the accessible version for referencing purposes or so they know they are on the right page in a lecture. These often need to be inserted manually as the software does not always pick them up correctly or at all, and this can be time consuming.

5.3.3 Effect of transcription problems on students

When asked about the impact delays receiving materials in alterative formats, and other problems, had on students, staff respondents gave differing responses. One disability service staff respondent felt that the students she had worked with had coped all right:

> The students we get seem to be very resilient and realise and accept that there's going to be a delay and they figure different ways out. It's almost as if that if we didn't provide alternative formats they would still manage somehow but not at the same

> level that other students would. So it is a problem but it's out of our control. We can't do anything to speed that along.
>
> *Jackie, alternative formats manager and disability service advisor, University C.*

Another felt that delays could make things much harder for students:

> I think it does have an impact. I mean, the student that [Hazel] works most closely with, you know it's a constant impact because you're permanently trying to find something you can access just so you can keep up with the course, and that student's thinking of doing a PhD so that's going to bring up all sorts of new things. For another student who did a Masters, he was the one who preferred to have everything scanned, you know that took quite a while and he had to wait for the department to issue a book list which was, the book list needed to be issued to the library as well so they could make sure they had the books in and then there is a time delay.
>
> *Rachel, disability service advisor, University D.*

The respondent above felt that, particularly where students were 'high achievers', the impact of problems receiving materials in alternative formats may not be so obvious:

> I think we're also dealing at [University D] with students who are highly academic as well, which in some respects might not highlight as much as it might at another institution, how difficult it is for some students and how much extra work they're putting in. We're talking, well, over double the amount of time I would say and some of them will still manage a First and it looks like they've been fine and in fact they've been struggling all the way. So I think maybe that, the high level of academic ability sometimes shields the rest of the university from knowing quite how much a student's struggled.
>
> *Rachel, Ibid.*

Student respondents had much more to say about the effect that problems making this adjustment had on them and their studies. Most of the student respondents said they experienced delays receiving materials that needed transcribing. A large number said they avoided using books and journals for this reason. One said:

> Generally I prefer to get the same information from an online source if there is one and I've managed not to be forced to get anything from the library.
>
> *Steve, science-based undergraduate, University D, low vision.*

Steve's use of the word 'forced' reveals how difficult he and many others found it to rely on having materials from the library transcribed. It was common for student respondents to say they prefer to use the Internet to search for information rather than trying to gain access to hardcopies of materials from libraries.

Student respondents tended to be quite concerned about their access to alternative formats. One explained that his university had had great difficulty providing him with materials due to the amount of mathematical notation involved, and he said he was "concerned about getting extra materials to read" as his final year involved a "research project" (David, maths-based undergraduate, University A, blind). He said he was "probably capable of high marks" but that his difficulty obtaining materials during his degree had led to a lack of knowledge. Another was also concerned about how his lack of background reading may have affected his grades. He said:

> I used to get all the lecture notes and slides emailed to me, so I'd rely on them. I wouldn't do any kind of extra reading and just relied on all the notes for the exams and essays and that kind of thing. ... I still managed to pass and do OK but I probably could've got better marks if I had done the reading.
>
> *Jim, psychology-based postgraduate, University A, blind.*

It is obvious that not all of the students had access to the extra materials they needed to properly read around their subjects and get good marks. One was particularly annoyed about this:

> I'm not too happy with [the alternative formats service]. This is my fourth year, and they have always been slow. I've complained a few times, but they will always just try so hard to defend themselves, rather than solve any problem ... and I'm

> not satisfied with [them] ... it has come to the point where I don't really rely on them at all. And I guess in a sense that shows how bad it's getting ... for me anyway.
>
> *Jim, psychology-based postgraduate, University A, blind.*

Most of the print disabled students who needed substantial changes to text, e.g. Braille or large print, had provision for their university to convert materials for them. It was also common for the student to be provided with a scanner and OCR software from their DSA to enable them to scan and read small quantities of materials. Some of the students in this study revealed, however, that they were actually using this facility for large volumes of materials, either because their university did not do this for them at all, or because they were not doing it as well, or as quickly, as students needed. One student respondent said:

> Now I don't actually rely on the [alternative formats service] at all, simply because they are far too slow and unresponsive, and I just scan all my books and read them on my computer now.
>
> *Jim, psychology-based postgraduate, University A, blind.*

Another said there was no provision at her university for transcribing materials into Braille. Instead she scanned her lecture materials herself so she could read them using her computer and used the Internet for additional information. She said that she also listened "really hard" in lectures and confessed that she had "managed without" reading any books so far (Caroline, media-based undergraduate, University E, blind).

The extra work involved for students in scanning their own materials or finding them on the Internet should not happen if they have adequate 'reasonable' adjustments in place. Whilst Caroline did not seemed particularly unhappy about not receiving this adjustment, Jim complained heavily about the delays that forced him to scan his own materials. He said:

> I've told them many times what I need, and what books I need, and that I need them in an electronic format, but they never really listen to what you say, that's the problem. And it takes them absolutely ages, I have no idea how they do it ... it's just really incredible. I sent them my module guide, and what

> readings I need. I only have two modules this term and last term, and I sent them my module guide at the beginning of term ... well before actually, it was during summer, and for one of the modules they haven't sent me back anything at all, and the other one they have sent me much less than a quarter. There is no way I can really get going with the course at all.
>
> *Jim, psychology-based postgraduate, University A, blind.*

Of course, non-print disabled students may decide to photocopy sections of books which they wish to read, but scanning is a different matter. It takes time to scan each page, run the OCR software, deal with errors and then listen to or read enlarged text on the screen. Given the importance of transcription to many print disabled students, universities should be provided with sufficient funds, ideally though the students' DSA if they have one, to ensure that students get the materials they need in an appropriate timescale.

The print disabled students in this study also complained that most non-print disabled students can go to the library and have immediate access to any materials they require, but since they themselves could not they felt their choice of reading material was sometimes limited. One student respondent also complained that as a student with a visual impairment he was denied much of the choice over what books to read that a non-print disabled student would have. He said:

> Someone spent weeks and weeks transcribing and scanning and doing whatever they can for me and then you think I hate this author but I'm stuck with it while everyone else gets three or four books to choose from in the library and chose the person they like.
>
> *David, maths-based undergraduate, University A, blind.*

Another made a similar comment:

> Someone can come to the library and pick up a seven day book, you know, or something like that. They can sit in one of the quiet areas and read or go home or something whereas we

> have to go through this extremely long process that takes forever it seems.
>
> *Paul, psychology-based postgraduate, University C, blind.*

This is a very difficult problem to overcome, but in an ideal world the alternative formats service should be able to offer students a wide enough choice of reading materials to complete their courses. This would of course rely on academic staff being able to provide reading lists sufficiently in advance (see Section 5.3.2.1) and publishers providing suitable electronic formats in a timely manner (see Section 5.3.2.2).

Although many students' universities converted materials to alternative formats for them, some students were heavily involved in this process themselves. A long conversation was had with one student about the amount of processing he needed to do before being able to access a document. He complained that 30-90% of the time he spent accessing a document was actually used making it more accessible to him. He said:

> What takes someone [else] half an hour to read or something like that may sometimes take me, I don't know, about two hours or sometimes three hours.
>
> *Richard, computing-based undergraduate, University D, blind.*

In Richard's case it would have been very difficult to convert his materials without his input, but it is clear that this slowed down the reading process for him.

5.4 Non-medical helpers/disability support workers

The term used in DSA applications and needs assessment reports to describe those providing human support for disabled students is 'non-medical helpers'. At the four universities studied many different terms were used to describe this umbrella term, but the generic term used in this thesis is 'disability support workers'. Many different types of disability support worker exist, and again, the terms used in the four universities varied. Generic terms are used in this thesis to describe the different types of disability support workers respondents talked of. These include: notetakers; readers; scribes and library assistants. In some cases, students did use other types of disability support worker, such as mentors, because they had additional disabilities, but only those relevant to overcome barriers related to print disability are discussed in this thesis.

Most student respondents said they had been provided with notetakers, several had worked with readers and scribes to varying degrees, but only one or two said they had needed a library assistant. They did not report any significant problems using disability support workers, but it was clear that they only used them occasionally and generally preferred other methods of accessing materials. As can be seen below, respondents only reported problems with readers and scribes, and these were fairly minor.

5.4.1.1 Notetakers

Many print disabled students have difficulty taking notes in lectures and seminars, and student respondents explained there were many different reasons for this. This may be due to difficulty following the content of the lecture; for example, not being able to copy items from the board or follow a session that relies heavily on inaccessible audio-visual aids. It may also be due to physical problems taking notes; for example, typing too slowly to keep up or being unable to write notes neatly enough to read back later. For students who have dyslexia there are likely to be additional difficulties relating to organising notes in a way that is useful for later use.

As a result, many print disabled students have human notetakers, generally paid for from their DSAs. Notetakers are usually trained and their job is to attend lectures with students and take comprehensive notes. How much detail notetakers are required to provide, and whether they use bullet points or full sentences, generally depends on the student they are taking notes for and the student's condition or impairment.

5.4.1.2 Readers

Some print disabled students prefer audio materials, but very few course materials are available in this format. Screen reader and text reader software (often called text-to-speech) can be used to read electronic formats aloud, but even the more natural sounding voices can be difficult to listen to and concentrate on for long periods of time (see Archambault *et al.*, 2007).

Readers can prove expensive when compared to assistive technology or transcription and are less convenient because of the need to pre-arrange times. The advantages are that they are relatively easy to use and can access print in any format be it standard-format print or on a computer screen. Commonly text is read to students, while non-text elements such as pictures, graphs, diagrams, etc., are described.

Problems

One disability support staff respondent emphasised that speech can be ambiguous, especially when dealing with mathematical notation. The example she gave was that the simple phrase "A over B plus C" can mean either "A over (B plus C)" or "(A over B) plus C" (Sarah, maths and disability support tutor, University C). She said that complicated equations are much harder to understand and this is a constant difficulty for her and her students. She suggested it may be helpful for the reader to be aware of materials required for a reading session, to draft a written description of non-text or to become familiar with subject specific language. Possible ambiguities in spoken language can present difficulties for students dictating mathematics to a scribe, but although two student respondents Jim (psychology-based postgraduate, university A, blind) and David (maths-based undergraduate, University A, blind) had done this and neither reported any problems.

Listening to a text being read aloud or the verbal description of a graphic item is time-consuming. It takes far longer to read a text aloud than it does to read silently, as does comprehending the description a graphical item when opposed to simply looking at it. The process can seem very dry. To a lesser extent with screen-reader and text-readers this is also an issue, but most software allows speech rates to be changed without significant loss of clarity. Staff respondents mentioned these possible problems, but none of the student respondents had any complaints.

5.4.1.3 Scribes

Print disabled students may have difficulty physically producing handwritten work, generally because they cannot see well enough to read their handwriting or cannot write clearly enough for someone else to read it. Although in some cases computer use can overcome this difficulty, some students do not feel they can type fast enough in timed situations such as examinations. Additional difficulties exist in subjects that cannot easily be produced on a computer, such as maths and science based subjects that may contain a lot of specialist notation. Students may, therefore, need to dictate their work to a scribe.

Problems

A number of student respondents said they successfully use scribes in examinations, but some found this difficult. For example, one said she disliked the experience:

> I tried using a scribe last year for the first time, but I screwed up my paper because I'd never used a scribe before... Trying to construct sentences in thin air [was difficult]... I felt very, very lost and uncomfortable.
>
> *Jenny, social science-based undergraduate, University A, low vision*

Another said he found it easy to use a scribe for maths-based subjects but felt this would not be the case for psychology-based subjects:

> I'm quite used to it now. But, I mean, [for the maths-based subject], that kind of stuff is a lot easier than [dictating] an essay. I have no problem with it, but I'm sure I would have a problem if I had to write my essay by dictating.
>
> *Jim, psychology-based postgraduate, University A, blind.*

Those with longstanding visual impairments found the use of scribes simpler than those who had more recent visual impairments or dyslexia. This is perhaps because of their greater experience of enforced reliance on these.

5.4.1.4 Library assistants

Disability support workers may assist students to overcome accessibility difficulties encountered whilst conducting literature searches and obtaining electronic or physical materials. This generally involves supporting students to use library catalogues (printed or online) or online information gateways to find out what literature exists and where to find it. They may then help the student to download electronic versions of materials, access websites and eBooks or identify physical copies of books or journals, all of which may need to transcribed. It is important to note that library assistants are designed to overcome difficulties students may have with accessing materials, and are essentially there to 'be the students' eyes'. They are not intended to assist students in deciding which materials are appropriate, although having subject-specific knowledge can make searches quicker if they are familiar with the library or online resource.

5.5 Specialist equipment and assistive software

Many print disabled students are provided with specialist equipment and assistive software via DSA. As with all aspects of DSA, recommendations are suited to the student's needs and course requirements, and different solutions may be needed for different students.

Specialist equipment includes additional equipment such as magnification devices, reading stands, coloured filters or glasses, but also more accessible versions of standard equipment. For example, traditional calculators may be replaced with ones that provide speech output and computer keyboards may be replaced by ones with large print lettering. This assistive software can often be used to assist with producing as well as accessing materials and some students use computers to write examination answers or use laptops to take notes in lectures. Sometimes even without assistive software computers can help some print disabled students with access to, and/or production of, materials.

5.5.1 Problems with compatibility

Student respondents often said they are unhappy about the poor compatibility of the software they need to use on their courses with their assistive technology. Cooper explains that there are two main reasons why the specialist software may be incompatible with the assistive technology some students use:

> This incompatibility can come about for two main reasons: either the assistive technology and the software package make competing demands on the resources of the student's computer, or the software package does not provide the 'hooks' needed for the assistive technology to interact with it. [...] One simple example of the second type of problem is where a

> student does not use a mouse or equivalent pointing device, and the controls of the software package are presented only for mouse interaction with no keyboard equivalents.
>
> *Cooper, 2003, p.45.*

Some student respondents had difficulties for other reasons. For example, one student respondent needed to use maths-based software and that while he could use it to some extent it was fairly difficult:

> There was a way round it ... any text that had to be edited for it could be written in Notepad and then you just saved it in a file and then load[ed] that file into the software and then the output could be read. It was normally just the editing that was the problem.
>
> *David, maths-based undergraduate, University A, blind.*

His problem seemed to have been created by software that would not let him edit data or read the data that was output. Since this could be read by his screen-reader if he transferred it into Notepad there seems no real reason why this piece of software could not have been made accessible.

In some cases, however, student respondents spoke of situations where the reasons for the software being inaccessible were material to the function that the software was designed to perform. One needed to use software to, "draw data flow diagrams which wasn't really accessible at all" (Simon, computing-based undergraduate, University B, blind). He said this inaccessibility was common, "it's often not very accessible, [so] I'll have to have a notetaker or helper, to get the software for me" (*Ibid.*). The problem here was of an additional type to the two described by Cooper as the issue was that the output the software was designed to produce was graphical (data flow diagrams) and many pieces of software used by maths and science-based subjects in particular produce graphical outputs such as diagrams and graphs. Since these outputs are dynamically created using the data that students or their assistants enter in to the computer there is no way the software developers can produce an alternative audio description or program the software to produce one.

Another student respondent also experienced problems accessing output that could be solved by pasting into another program. Again there was no inherent reason why the software he needed to use, SPSS (Statistical Package for Social Sciences), could not have been made more accessible to his screen-reader, JAWS:

> JAWS isn't brilliant with [SPSS] ... I have to copy and paste the output into [Microsoft] Word and then [JAWS will] read it OK then, but actually entering the data its quite slow and it doesn't [always work] - somehow if the number's 12 it will say 3 - for some reason it adds the 2 numbers rather than saying 12.
>
> *Paul, psychology-based postgraduate, University C, blind.*

In most cases the student respondents who struggled with software were blind and they usually resorted to sighted help to access the software. Another solution was to use alternative, accessible, software, and one student respondent was able to do this as his project allowed him some flexibility. He said that his department allowed students to "choose whichever software you want for it, so I am using something that isn't standard in [my] department but does work well with my speech and they're happy with it" (David, maths-based undergraduate, University A, blind).

In some ways this is a non-institutional barrier, since most universities do not design software themselves. They do, however, have some choice over which software they use and could base their decisions on how accessible particular programs are. Cooper says that, "as a way of meeting its obligations to make its courses accessible to disabled students, an HEI should set essential accessibility criteria for selecting any software package for use in its courses as a matter of policy" (2003, p.40). This seems sensible in theory, and is possible in some cases, but in reality most types of specialist software do not have accessible versions, and may not be able to be made accessible due to their inherently graphical nature. This means that there is often little for universities to choose between. It is therefore currently necessary for universities to provide non-medical helpers, preferably with knowledge of the software to be used. This is a responsive individual adjustment and it is 'reasonable', appropriate and, generally, effective.

5.6 Adjustments to teaching, self-directed study and assessments

Undergraduate (UG) and taught postgraduate (PGT) courses generally consist of the following three areas in which students will frequently need to access written materials: 1) teaching 2) self-directed study; 3) assessment. Research postgraduate (PGR) courses are generally based around self-directed study and written assessments called dissertations or theses. PGR courses include supervision sessions but these are not discussed separately as access to written materials is not usually an essential part and no respondents commented on problems with these. All course types may incorporate practical sessions and lab work, but as access to written materials is not the focus of such, it was decided that these fall beyond the remit of this study.

Most print disabled students will require adjustments that take into account their underlying condition/impairment as well as their preferred methods of accessing materials and any limitations of these. Whilst these adjustments are often recommended in a student's 'needs assessment' or by the disability service, they often need to be made by, or in consultation with, academic staff. The rationale for providing these adjustments is that 'standard' university practice may not be inclusive enough to allow print disabled students to study courses without facing barriers.

5.6.1 Teaching

Lectures, seminars and other teaching situations often require students to access audio-visual aids and to produce written or graphical notes at quick pace. Teaching methods used may also present accessibility problems if they assume a level of visual ability by, for example, writing on the board or using hand gestures.

Many academics use 'lecture materials' such as handouts and slides to enhance student understanding and to complement lectures, seminars and other teaching methods. These are often inaccessible to print disabled students because they use standard-format print or graphics in the case of handouts, or involve text or graphics too far away to be seen properly in the case of slides.

Some academics provide comprehensive notes on session content for distribution to all students or only to those who specifically request them. These comprehensive notes are referred to herein as 'lecture notes'. Lecture notes are particularly useful when academics use a 'chalk and talk' approach, which involves writing on a board, a flipchart, or an interactive whiteboard during lectures. This is most common in maths-based and science-based subjects. (This technique is referred to in this thesis simply as 'writing on the board'.) Student respondents with visual impairments said it is particularly useful for academics to produce lecture notes with details of what will be written on the board during the lecture. It should be noted that, as with other lecture materials, lecture notes may need to be provided in advance for transcription.

5.6.1.1 Providing reading lists in advance and prioritizing materials/identifying key texts

Many academics produce a substantial reading list of useful materials for each course that they teach, and make this available to students at some point during the course. Staff respondents involved in producing alternative formats said they generally request that these lists be provided to them in advance of the start of a course so that conversion can be started early. Many ask for items on this list to be prioritised so that only the most important texts are transcribed, as producing every item on the list is prohibitively time consuming and expensive. If a particular text is needed by a student on a particular date, e.g. to be read as preparation for a seminar, then this information is also requested. This helps manage the transcription workload more effectively and increase the chance of the students receiving material in good time.

Academics may therefore need to adjust their teaching preparation to enable them to provide reading lists sufficiently in advance to allow transcription. Those who do not routinely produce reading lists can assist by either creating one on request or identifying key texts. This will allow transcription resources to be appropriately channelled on materials that are most useful.

These adjustments appear to be a reasonable, and although respondents reported problems associated with the practicalities of making them, as discussed below, they did not report concerns about the rationale behind them.

Problems

One disability support related staff respondent had been involved with obtaining required reading lists for students with visual impairments.

> We had a meeting with the module convenor and we asked the module convenor to review their booklist to prioritise the texts and the chapters of particularly of importance because we couldn't physically convert everything to Braille and we couldn't give a student too many choices. The module convenor said, 'What are you particularly interested in? What would you like to write your essays on?' and [then] finite lists were then photocopied and given to [the alternative formats service].
>
> *Jessie, psychology-based DDO, University A.*

One disability support staff respondent admitted that the need to prioritise reading lists in order to reduce amount of transcription required could be a problem for students. She said:

> I guess the student does have to miss out on some aspects of books because they wouldn't always get [their materials] when they need [them]. There's a time delay in getting these things, even from the publisher.
>
> *Jackie, alternative formats manager and disability service adviser, University B.*

Another felt that for students with dyslexia it may be necessary to reduce required reading simply because of difficulty reading everything and difficulty choosing between different materials even if these are entirely accessible. She said that in the case of students with dyslexia "the choice necessarily needs to be reduced because they cannot read all the things that they've been asked to (Sarah, maths and disability support tutor, University C). This would be equally true of any print disabled student whose reading speed is reduced.

It is important, however, to emphasise the difference between reducing the workload for students (so that they are only required to read the most useful materials) and reducing staff workloads in terms of transcription. In an ideal situation, decisions about prioritising reading lists would be made based on what is most useful to students rather than how much can be produced using current resources.

If done for the right reasons (i.e. to primarily benefit students not staff) prioritising reading lists is an appropriate adjustment, and may well be effective at reducing the amount of reading a student has to do. A possible consequence of reducing a student's access to materials is the reduction in background reading, thereby hampering the students' abilities to perform well in examinations and coursework. But if this adjustment is made carefully and the right materials are selected, this adjustment can be a 'reasonable' one.

5.6.1.2 Providing lecture notes and other lecture materials in advance

Several student respondents said that lecture notes and other materials are essential to their understanding of a lecture. One also said these help to improve his concentration in lectures:

> By far the most useful adjustment is the fact that lecturers are happy to provide me with copies of the electronic notes.... If I have the notes... I can follow the lectures easily; if I don't have the notes I tend to fall asleep... My mind just wanders elsewhere all of the time.
>
> *Steve, science-based undergraduate, University D, low vision.*

Providing lecture materials in advance is a reasonable adjustment for universities to make, and is essential if transcription is required. Many academics find it difficult to provide these and so students do not always receive them in time. This was something staff and students were unhappy about, and is discussed further in Chapter 6.

5.6.1.3 Allowing students to have notetakers present

Most academics encourage students to take notes during lecturers and seminars, although the researcher's own experience is that some actively discourage this for fear of interference with verbal comprehension. Most students are required not only to take notes in lectures and seminars of what is being said, but also from slides or content written or drawn on the board. Many print disabled students have difficulties with this. For some, this is due a combination of difficulties seeing these materials (especially for students with visual impairments), comprehending them and producing notes that they can access later. For other students, particularly those who have dyslexia, the issue is rooted in the production of well organised notes while paying attention to speakers. Thus, a common reasonable adjustment is the provision of a support worker acting as notetaker for the student (see Section 5.4.1.1). This was not an adjustment that respondents reported any problems with.

5.6.2 Self-directed study

Self-directed study generally involves students reviewing notes they or their notetaker have made in taught sessions. Another important aspect is accessing extensive written and/or graphical material, generally in the form of books and journal articles. Given that this is difficult for most print disabled students this is inevitably problematic.

5.6.2.1 Problems

Many student respondents said delays with transcription led to problems using self-directed study time effectively. These delays occurred predominately because transcription is a slow and resource extensive process that does not allow students immediate access to materials. The impact of problems with the transcription process are discussed in detail in Chapter 6. Some student respondents also said the amount of work they were able to do was limited by their reduced reading speeds, or because they experienced eye strain if they read for too long. Where self-directed study was carried out to produce coursework this was usually alleviated by allowing extensions to deadlines (see below).

5.6.3 Assessments

5.6.3.1 Extensions to coursework deadlines

Coursework and other written assessments such as dissertations and theses usually have set deadlines and students are expected to show that they have read a reasonable number of different source materials.

Academics may make reasonable adjustments to help students to reduce the amount of materials to be transcribed and the amount of time they need to spend reading (see Section 5.6.1), but for many students this is still a time-consuming process. As a result, some find they require extended coursework deadlines. Interviews suggested that extension length varies and some universities have a strict limit on the length of time that can be given, often limiting them to one week. Other student respondents found their universities are more flexible, offering to let them postpone assignments until the next semester, or complete them over the summer. This seems to be a reasonable adjustment that many universities are willing to make, but student respondents did highlight some problems with extensions (see below).

Problems

At University B, extensions could be hard to get for students in some departments. One disability support related staff respondent said:

> Not all departments grant extended deadlines. Some departments have a blanket policy of not granting them and the only thing we can do then is support the student's application. What happens [in such a case] is that basically they lose the marks in the first place and it goes through to the extenuating circumstances committee, who decide whether the circumstances are extenuating enough to give them their [full] marks.
>
> *Susan, disability service adviser, University A*

For example, a disability support related staff member at University A said that in his department extensions for students who have dyslexia are generally limited to one week to give them extra time to proofread their work (Charlie, social science-based DDO, University A).

At University C a non-disability support related staff respondent said the general policy is to provide a maximum of one week's extension regardless of the student's disability (Andrew, computing-based academic, University C). A disability support related staff respondent at University C confirmed this, and added that although it was up to individual academics, the disability service did not recommend them just on the basis of dyslexia.

Instead they recommend students "get help with time-management and organisation if that's a problem" (Karen, disability adviser, University C).

At University D the length of extensions granted depended very much on the reason why the student needed one and, to some extent, who they requested it from. One disability support staff respondent said: "I think it does depend what the circumstances are and what the work is really, and when the student has asked and whether the student has actually been talking to the right people as well" (Rachel, disability service adviser, University D).

Although many student respondents granted extensions said they found these useful, extensions are not without their own problems. Most commonly, students are faced with several pieces of coursework to complete and examinations to revise for. Extending one deadline often interferes with another. As a result some students try to avoid asking for extensions if at all possible. One said:

> It's all well that you can ask for extensions but of course that puts the pressure on something else. For example, if I have x [deadline assigned] and I have to produce something for it by Friday, if I postpone it [one week], it will mean that whatever I was going to do in the second week is going to be pushed even further... It would be kind of an escalating effect and extensions [necessitating] other extensions and so on (sic), you end up being very far behind, so I try my hardest not to get extensions.
>
> *Paul, psychology-based postgraduate, University C, blind.*

He is not alone as two other students also said they tried to avoid extensions:

> [In my psychology-based subject] there are essays, but I don't ask for extra time. I don't think it's strictly necessary... I don't see any point in having extra time. I take it as a given fact that if you have a disability you just have to work that little bit harder maybe, and I think maybe people should just accept [that]... I mean you can't ask for an extension of your life anyway... There's just no point asking for extra time all the time. That's my personal opinion.
>
> *Jim, psychology-based postgraduate, University A, blind.*

> I'm quite motivated when it comes to work, so I just pressure myself to get things done. I've never asked for any extensions... I'm quite determined to get it done in the amount of time [allowed].
>
> *May, social science-based undergraduate, University D, dyslexia.*

These two students clearly felt they could meet deadlines if they were more motivated and worked harder than other students, but not everyone felt this would help. One student with a visual impairment said extensions are invaluable because even if she worked harder she could not finish in time. She said: "there's only so many hours in a day. I do read extremely slowly, even if I read all day I wouldn't catch up with everything" (Jenny, social science-based undergraduate, University A, low vision).

Staff respondents said they recognised that some students may need extensions to coursework, but that these are not always easy to provide. For example, one disability support related staff member explained that "as a general rule the term is so packed that giving extra time isn't really practical" (John, maths-based DDO, University A). Generally though respondents seemed happy with the situation regarding extensions to coursework.

5.6.3.2 Extra time in examinations

Examinations require students to prepare and revise by re-reading lecture materials, lecture notes provided by academics and other notes they or their notetakers have made. Questions are usually provided in standard-format print, answers are usually expected to be handwritten and time limits are generally imposed, all of which can be problematic for print disabled students. Students often require examination papers to be transcribed or read to them, and some students require scribes. By far the most common adjustment student respondents reported was the granting of extra time in examinations. The extra time granted varied from 25% (which was the most common) to 100%. Those who had dyslexia generally said they receive 25% extra time, whilst those with visual impairments reported receiving a quarter to double the amount of time extra. The reason for this was generally given as slow reading speed, either because this was an inherent feature of the students' underlying condition or a result of the alternative format used. One student said her dyslexia made her "quite slow at reading" (May, social science-based undergraduate, University D, dyslexia) whereas another said it "takes a bit longer to read in Braille" (Simon, computing-based undergraduate, University B, blind).

Another reason some students said they required extra time in examinations was that some required a lot of careful reading. This was most commonly reported as a problem with multiple choice questions. Multiple choice examinations are usually seen as easier exams as answers are present for the student to identify. Difficulties arise, however, when the student has problems with reading and finds it harder to identify the difference between the choices that are given.

Time limits in examinations are an institutional barrier, but are easily overcome by allowing extra time to each student who needs it. This adjustment is responsive and individual, and must be so as each student will need a different amount of extra time depending on their degree of print disability and the type of examination. This is a relatively cheap adjustment to make as it is only necessary to pay the invigilator for their extra time, and none of the respondents reported problems with this adjustment.

5.6.3.3 Setting alternative assessments

If the adjustments above do not prove satisfactory, it may be necessary for academics to set alternative assessments. As one disability service adviser who had negotiated alternative assessments with academics said the nature of this alterative assessment very much depends on the needs on the individual student and the barriers they experience:

> Sometimes we've arranged for course work rather than exams; sometimes it's been a practical piece of work rather than a written piece of work. Sometimes it's been work done on audio tape rather than handwritten. It just depends on the needs of the student.
>
> *Susan, disability service adviser, University A.*

Since assessments are usually planned with specific learning outcomes in mind, and may even be moderated to ensure they are appropriate, one non-disability support related staff respondent said she worried about setting suitable alternative assessments (Julia, computing-based academic, University B). No other respondents expressed concerns about this adjustment and, depending on individual circumstances, this appears to be a reasonable adjustment for some print disabled students.

5.7 Other issues

5.7.1.1 Difficulties getting help and support

Several student respondents said they experienced difficulties getting the help and support they needed. One felt he needed to be proactive in asking for help:

> I find that if I ask [people] they are fine, [but] people don't come to you, so you have to be quite proactive, which I wasn't as an undergraduate. ... I don't think I'm pushy enough really. I'm just like "I'm ok. I don't want to hassle people". ... But I think eventually I'll learn to just ... keep ringing them up and hassling them.
>
> *Paul, psychology-based postgraduate, University C, blind.*

He frequently used words such as 'proactive', 'pushy' and 'hassling' and described how he wasn't these things as an undergraduate student. This begs the question of how many undergraduates, or students at any level, are these things, and should they have to be?

Many of the student respondents relied on informal support on top of, or in some cases, instead of, support from their DSAs or their universities. One said: "I often try and find other people who want to read [the document] and get them to read it to me" (Paul, psychology-based postgraduate, University C, blind). Another said: "I have a friend actually who reads for me sometimes" (Emily, psychology-based undergraduate, University D, dyslexia), and a third talked about using "others in my group" (Caroline, media-based undergraduate, University E, blind) to help with practical tasks. This practical support did not always work out and Caroline said that other students in her group were not always "reliable" but commented that "I don't know of another way round it when I've got no sight and need sighted help to do what I have to do" (*Ibid.*). When asked if anyone else could help her she said, "lecturers seem reluctant to do it with me and the notetaker doesn't know enough I don't think to do it" (*Ibid.*) which seems a very sad state of affairs for a student with DSA. One student respondent said he made use of other students attending the same conferences as him, but he was lucky that his DSA helped out when this support fell through: "there's normally somebody I'm going with who can help me out. But this time everybody else is not going so they're paying for a [support] person to come with me for the two days" (Paul, psychology-based postgraduate, University C, blind).

Although many of the students were happy to rely on some level of informal support and many people were happy to provide it, it seems necessary to ensure that this does not take the place of formal support that should be provided by the university under SENDA. There are no guarantees that informal support systems will not break down and leave students without support, and although more formal systems may be able to pick this up as was the case for Paul it does leave students at risk.

5.7.1.2 Lack of staff and/or other resources

Most of the staff interviewed felt that a lot of the problems they faced in terms of making adjustments could be solved if they were given more staff and more resources. One disability support staff respondent said:

> [The alternative formats service doesn't] seem to be particularly well staffed, we don't have enough room in the building that we're located in at the moment so part of the argument is even if they got us more staff we haven't got anywhere to put them, but we just seem to be getting more and more stretched in terms of workload. I'm conscious that I don't always get things done in a timely manner because I've got a case load of students, I've got management of the access centre and just by the very nature of the things that a lot of my students need, seeing them for an hour could then generate another hour or two hours work.
>
> *Susan, disability service adviser, University A.*

Similarly, when asked if there was one thing that would make her job easier, another disability support staff respondent said she would like a full-time assistant as there is always more work than she can do (Jackie, disability service adviser and alternative formats manager, University B).

One disability support-related staff respondent said she felt the same:

> Things are very busy, particularly at the start of term, I would say that as many resources as possible that the university can continue to feed into supporting students with disabilities would always be a good thing. I would like to say that I've been in this position four years now and I work a lot with [the disability service], with their staff, and I just think that they do an absolutely tremendous job, but even more resources into supporting students in this context I think would be a good thing.
>
> *Laura, social science-based DDO, University A.*

Staff respondents clearly felt that at least some of the problems they faced, particularly in terms of producing alternative formats, would be reduced if they had more staff available.

5.7.1.3 Academic staff insufficiently aware of disability issues and their responsibilities

As has been discussed several times during this chapter, respondents said they did not always feel that academics understood their responsibilities to make adjustments for print disabled students and to assist others to make adjustments. The non-academic staff all said that their jobs would be easier if academic staff worked with them more effectively.

> I think it's to ease the flow of information between me, the academics and the part time tutors, and the feedback just to have a flow of information ... seamless flow of information.
>
> *Jessie, psychology-based DDO, University A.*

As an academic himself, one disability support-related staff respondent said he understood why they found it difficult:

> It's obviously not all academics, as they all work in different ways ...and this just doesn't relate to disability issues, but often if you ask them for extra things they have their own timescales

> and their own priorities, which they can always meet, or the universities timescales and deadlines... But in thinking of the visually impaired student it would help considerably there if we could get information as we needed it.
>
> *Charlie, social science-based DDO, University A.*

This is clearly a problem that needs addressing if adjustments are to be as effective as possible for print disabled students.

5.7.1.4 Advance warning of print disabled students

Staff respondents explained that when students fill out their UCAS applications they are given the opportunity to disclose any disabilities or impairments, and if they do so the disability service is notified. If the disability service feels that it is appropriate, they inform the academic department that the student will be studying with them so that appropriate adjustments can be made early on. Staff respondents warned that this is only the case for undergraduate students applying under the UCAS system, and relies on student choosing to disclose on their applications. The limited information provided on the form also means that disability service staff rarely knows any details about a student's print disability. Nevertheless, staff respondents generally felt that this advance notice was helpful.

One disability support staff respondent said that once the disability service knew what the student's needs were they had a referral system in place:

> If [students] disclose at registration or on their UCAS form then they automatically get a set of paperwork which asks them to fill it in, send it back and part of that is to give us permission to pass that information on on a need to know basis to other services within the University. We then have a referral form which goes to the [alternative formats service] so they know what format a student will need, it goes to the departments [and] anyone who might reasonably be sending out material to that individual.
>
> *Susan, disability service adviser, University A.*

Two student respondents, Jim (psychology-based postgraduate, University A, blind) and David (maths-based undergraduate, University A, blind) had declared that they had visual impairments on their application forms, and the DDO for their department, John (maths-based DDO, University A) had been told that they had chosen his department as their first choice. It was not until mid-August when they got their examination results, however, that he knew for sure that they would be on his course. Since they needed to access mathematical notation in Braille he and other staff began to make arrangements but unfortunately University A had not produced mathematical Braille before and so did not anticipate the problems they might face. He said:

> We'd contacted the [alternative formats service] and had a look at what was available and at the time it seemed like it was going to be easy. There were choices, two different types of software that we could use and it was fine. They all said that they'd help with that so we thought that it was going to be a bit of extra work getting stuff typed up and so on but we didn't think that it was going to be a major issue.
>
> *John, maths-based DDO, University A.*

In fact, University A experienced significant problems producing mathematical Braille for David and Jim. Despite the problems, John felt that the six weeks' notice he had been given was sufficient, but he explained that if a student had a milder print disability such as dyslexia he would not have been given this notice.

> ... obviously on the UCAS forms the student may or may not tick the boxes, if there is something that as a disability would have serious impact on a student doing a course then we would consider it before they arrive, before we even make the offer, they would say can we make reasonable adjustments here and nearly always you can. But even if it is something like a wheelchair user or physical disability of some sort or even with a hidden disability where it might affect their ability to concentrate or so on, so if it is something that will need extra thought then hopefully we will know about it before they get here. It will be flagged up and hopefully we'll talk to the student or prospective student when they come for their interview. Dyslexia generally speaking is not considered an insolvable problem the solution is in place so I'd probably get told about it

> by [the disability service]. I'd get the referral letters we won't do anything other than that.

Not all academics felt they were given adequate time to prepare or sufficient information about their print disabled students and how to support them. This partly depended upon the point at which students disclosed that they were print disabled and how much information they provided, but also on how and when this was passed on. All four universities had referral procedures and the disability service generally passed information on to academic departments if they had it and the student agreed, but some academics felt they were not as well informed as they would have liked.

One disability support-related staff respondent at University A complained that they did not always get referral forms from the disability service, and when they did the information was not always very helpful:

> In theory we get [referral forms]. But, I think there's two problems with them: we get very few, they don't come through routinely so we certainly don't have them for all postgraduate students with disabilities. And secondly, the information doesn't quite address what we need to know. It will say things like "the student needs handouts in advance." That's another thing we do quite often, send out course handouts in advance, but it won't say, [for example] some of the problems of working in group work or the kinds of tasks that students might get set on a course like the sorts of things that we do, it wouldn't really alert us to the potential problems for the student with the activities that we run on the course. They're geared more at lecture and seminar situations.
>
> *Abbey, education-based DDO, University A.*

As a result, some academic departments were more proactive about getting the information from students themselves, especially trying to encourage students to disclose as early as possible. Another disability support-related staff respondent at University A, said:

> The first thing we do in the summer is we send [students] a letter and we explicitly say "even if you haven't disclosed a disability on the UCAS form, this is fine, now is the moment to

> let us know." And they come in and there's obviously no problem about being discriminated against, and so we tell them very explicitly that it's no problem if they haven't disclosed before and I introduce myself in the letter, and we give them the advantage to go onto the [name removed] system online to write their needs.
>
> *Jessie, psychology-based DDO, University A*

The department she worked in also followed this up during the first week of term by asking new students if they had any particular requirements.

> We don't actually say "do you have any disability", we say "is there any preferred way that you want to access knowledge?" "Is there any requirement for [you to] access knowledge?" Because somebody with dyslexia might not feel at all that the word disabled is appropriate for them.

Some academic staff said they were not always given enough information, and did not always know they were teaching print disabled students. One non-disability support staff respondent said this was particularly difficult if the student's disability was not obvious (e.g. they did not have a guide dog or a white cane):

> I suppose it is having information about people who aren't obviously dyslexic or sight impaired ... It is something that we'd react to if we know about it but you don't always have the information and I'm not quite sure where that comes from but I'm quite happy to talk to students and then some of them aren't happy to talk to you, you might have an administrator who knows of a problem but doesn't actually tell you so it is partly just knowing as it were which students you are dealing with.
>
> *Mike, maths-based academic, University B.*

Although some staff respondents clearly worried about getting the right information about students in time to prepare for them, the various approaches that were used generally meant they found out about students and had enough time to prepare for them unless they needed complex adjustments. Certainly no student respondents made complaints that seemed to be based on staff having had insufficient notice of their needs.

5.8 Unreasonable adjustments

Respondents gave surprisingly few examples of time when they had been told, or had decided, that proposed adjustments were unreasonable. One example of this, which was justified on the grounds of cost, was given in Section 5.2.4.1 where it was decided it was too expensive to install a screen reading program on all the computers in one room. Another example relates to proofreading of alternative formats where a student complained of errors in his Braille materials and was told that this was not possible. He said:

> I did ask about it [proofreading] and was told that it would just be too time consuming but even just to do a random sample of documents would be better than nothing. I would say that that would probably be reasonable if they're going to offer such [an alternative formats] service. If there is particular type of transcription that is problematic then they should be doing some quality checks on it.
>
> *David, maths-based undergraduate, University A, blind.*

Only one other respondent gave an example of an adjustment a student had asked for that was deemed to be unreasonable. David (*ibid.*) required mathematical notation to be transcribed into Braille, and due to the problems that University A had had doing this for him (see, for example, Section 5.7.1.4) several methods had been considered. One of these was a Tiger embosser, a device for producing two-dimensional mathematical Braille. University A borrowed one of these so David could evaluate the output, but he found it made mistakes and the unfamiliar layout was too difficult to read, so they went back to using the previous system instead. Later on, continuing problems with the original system led David to ask to revisit the option of a Tiger embosser, but as the machine costs £6,000 and he was now in his final year he was told that this was not reasonable. Susan, a disability support staff respondent who was the alternative formats manager at the time said:

> ... given that materials [were] already being transcribed into Braille albeit with some problems, [... and] the Tiger system [still had] some blips in it, although it would be slightly easier to produce the materials, we were already producing them so we

> didn't feel that that was a reasonable adjustment [...] because we were already making another reasonable adjustment.
>
> *Susan, disability service adviser, University A.*

These are both examples of where an adjustment was said to be unreasonable on the grounds of cost, and it is perhaps surprising that so few examples were given. It is not possible to say whether these are just the 'tip of the iceberg' and whether in fact many other adjustments were also being turned down on the basis of lack of funds. Given that many adjustments are paid for by students' DSA or via ALF, rather than directly from University funds, as the adjustments above would have been, this justification is perhaps less likely to be accepted by the courts and this may account for it only being used rarely.

5.9 Conclusion

Perhaps unsurprisingly, producing accessible formats and transcribing standard-format materials into alternative formats has been shown in this chapter to be the most problematic of the adjustments required by print disabled students (see Chapter 5). As standard-format print presents a fundamental barrier to such students, it is clearly reasonable and necessary to make this adjustment. All four of the universities studied provided this adjustment and student respondents repeatedly said how important it was to them. They all said, however, that they often experience delays receiving materials. Some also said that problems obtaining suitable electronic copies of original documents or difficulties scanning hardcopies meant that they could not be provided with as many materials as their non-print disabled peers. Several were concerned about the impact these difficulties have had on their studies and many were concerned about the possible effect on their grades. It is therefore clear that this adjustment is not always as effective as it could be.

The reasons for these problems are multi-faceted and it is not necessarily the staff who produce materials that are responsible. Both staff and student respondents pointed to two main difficulties: 1) receiving lecture materials and reading lists from academics, and 2) obtaining suitable electronic copies of materials from publishers. The first is an institutional barrier as reading lists and lecture materials are produced by academic staff. Once reading lists are provided, the non-institutional barrier of obtaining externally produced materials then needs to be overcome.

Producing materials in alternative formats can be an anticipatory institutional adjustment in so far as universities can ensure that all the materials they produce are available electronically in an accessible (e.g. rich text) version. If other versions such as PDF files and PowerPoint slides are used problems can be reduced if they are produced as accessibly as possible.

Students also need to access books and journals produced by publishers, which are normally only produced in standard-format print, or if available electronically, these versions may not be accessible. Publishers are not legally required to ensure that all the materials they produce are available in an accessible format, nor do they have to provide an electronic format suitable for transcription. The work involved in trying to obtain these or transcribe hardcopies must not be underestimated.

All students are individuals and have different requirements for accessing materials. This means that there will often be a need to make responsive individual adjustments for students in terms transcription even if accessible electronic formats or alternative formats exists. There are clearly ways, however, of making this transcription process run more smoothly and with fewer delays.

Respondents did not report any significant problems with self-directed study or assessments that were not related to delays receiving materials in alternative formats. These delays were often exacerbated, however, by lecturers not providing reading lists or lecture materials sufficiently in advance for transcription, and students clearly did suffer as a result. Student respondents said that receiving lecture notes and other materials in their preferred format in advance of lectures was very important to their ability to follow a session and to understand its content. Yet it is evident that not all of the academics in all of the universities were doing this. This problem is not restricted to the universities under study, and one of the cases referred to the then Disability Rights Commission was about this issue:

> The client has a severe visual impairment and is unable to read documents on white paper, OHP sheets or whiteboards. Her

> university had agreed to supply all printed information on blue paper in a large font, and that lecturers would be asked to provide copies of any material presented on OHP on blue paper at the start of lectures. These arrangements broke down repeatedly. The client found this very stressful.
>
> *DRC, 2004, p.14.*

The case was settled out of court and the client received "a goodwill payment of £1000 for injury to feelings" (*ibid.*).

This is an appropriate and 'reasonable' adjustment, but it is not unproblematic. Many student participants reported that they frequently do not receive materials in time to make use of them in lectures, and as a result this adjustment is often less effective than it could be. The barriers involved seem primarily related to time pressures on the part of academics, which can be seen as institutional barriers to some degree, but there are also attitudinal barriers in terms of academic and support staff understanding the constraints each are under. Students naturally lay the blame on the individual academic staff who fail to provide this adjustment, but perhaps the issue is one that runs deeper than that. If academics genuinely do not understand why materials are required in advance, and genuinely struggle to find the time to produce and transcribe them, then surely this is a problem that needs addressing at an institutional level. By continuing to mainstream disability and ensuring that all staff are clear about their role in promoting disability equality, academics may more easily be able to understand the adjustments they can, and should make, to teach in a way that is inclusive and accessible. It is suggested, however, that in order to do this, academics may need to be encouraged to devote more time to teaching preparation, and this can only be done if the time taken up by other aspects of their role is adjusted accordingly.

As respondents stated in Chapter 4, the purpose of reasonable adjustments is to overcome such barriers and enable students to "access learning" (Jessie, psychology-based DDO at University A) and "learn on a level playing field" (Charlie, social science-based DDO, University A). moreover, adjustments should be made in a way that "enables effective learning" (Sarah, maths and disability support tutor, University C). From the accounts given of some student respondents this was sometimes unsuccessful, particularly with reference to the transcription process. As will be discussed in Chapter 6, however, frustration with the implementation of a particular adjustment does not necessarily lead to dissatisfaction with this adjustment, or overall dissatisfaction with the efforts that are made to overcome barriers.

6. Exploring barriers and adjustments further and understanding staff and student accounts

6.1 Introduction

The chapter explores some of the issues and themes that emerged during my research and considers what these reveal about staff and student experiences. It aims to address parts c-f of the research question:

c) What problems arise with the implementation of adjustments?
d) How reasonable are the adjustments made?
e) How satisfied are staff and students with these adjustments?
f) How far do the expectations raised by particular models of disability affect staff and student perceptions of adjustments?

This chapter explores the complex nature of the barriers and adjustments print disabled students experience. It suggests that barriers are not always easy to overcome, they take many forms and each print disabled student experiences different barriers to different degrees. It highlights that many different perspectives and perceptions exist, and it is often difficult for one 'stakeholder' group to appreciate the needs and pressures of another.

It explores staff and student accounts, considering how satisfied they are with adjustments and why this may be. Finally it asks why students were not more critical and why staff were not more satisfied.

6.2 Exploring the complex nature of barriers and adjustments

6.2.1 Some barriers are very difficult to overcome

The literature on the social model of disability, as well as the expectations evident in many respondents accounts, seem to suggest that all barriers can be overcome, and that when they are not this is because of the actions of society, or a person in it. This assumes that it is always possible to identify a barrier and recommend an adjustment (or adjustments) that will overcome it, even if in fact the implementation is problematic. This is often true, for example, whilst academics find it difficult to provide materials in advance they are often able to find a way to do this once they understand why it is necessary (see Chapter 5).

My research suggests, however, that some barriers are inherently difficult to overcome, no matter how many different reasonable adjustments are tried. The case study below describes how mathematical notation remained a barrier, despite the expending of significant time and effort by both staff and student respondents.

6.2.1.1 Case study: maths-based courses

The problem

Courses that rely on mathematical notation are particularly difficult for print disabled students. Whilst it is relatively straightforward to recommend adjustments for students who require access to Standard English text, there are practical barriers to be overcome when converting other types of content, and mathematical notation is perhaps the most problematic. This is evident from accounts given by my respondents, but is also noted by Cliffe, who draws "a comparison with the level of access provided by assistive technology for students studying less symbolic subjects [and attempts to] clarify the nature of this technology gap and the direction of projects addressing the accessibility of mathematical resources" (Cliffe, 2010, p37).

For Braille users, the basic problem with mathematical notation is that it contains many non-standard characters (i.e. those that cannot be found on a computer keyboard) and is two-dimensional whilst Standard English Braille is essentially linear (Maddox, 2007). Mathematical Braille, and two-dimensional Braille do exist, but some student respondents said they had difficulties understanding this as they had not encountered it before. For large print users, maintaining the correct layout of mathematical notation or graphics whilst making them big enough to see is also a challenge, and describing these orally is not straightforward either (Rowlett, 2008).

PDF files

One disability support-related staff participant said that he tried very hard to get an electronic copy of a mathematics textbook for two print disabled students from the publisher, but when he finally received it it was in PDF format and "basically unusable" (John, maths-based DDO, University A). It is almost impossible to extract mathematical symbols and the correct layout of formulae from PDF documents as these only contain the mathematical notation as an image. Respondents explained that, at best, you will extract a string of letters and numbers but will not be able to tell how they relate to each other and what other symbols, for example ∞ (infinity) or Σ (sum) have been ignored.

This is a problem with all PDF files (and hardcopies, see below) containing mathematical notation.

LaTeX

Several respondents explained that the best format for mathematical notation to be provided or produced in if it is to be converted to alternative formats s LaTeX. This is a mathematical typesetting language that uses standard keyboard characters to produce mathematics and provide information about the layout of equations and other formatting such as line breaks, font size and type. This is difficult to convert to Braille, due to the limitations of common Braille translation programs, and although it is possible to convert this to large print it requires the transcriber "to be really careful with it and check through everything to make sure it is readable [by inserting] line breaks and page breaks in sensible places" (Lucy, disability support worker, University A). Respondents found it very difficult to obtain materials in LaTeX format, and typing them up into it was very time consuming. Typing also need to be done very carefully to avoid mistakes because "in an equation just one character can make a big difference to the meaning" (David, maths-based undergraduate, University A, blind).

Math-type or equation editor

Another common method of producing mathematics at the time my field work was carried out what to use Equation Editor in Word. This is not longer available in Office 2007 and after, however. Whilst Equation Editor format itself could not be transcribed, some progress had been made at University C in terms of obtaining mathematics from MathType, the paid upgrade to Equation Editor. This was only possible however, using two-dimensional Braille and a special embosser called a Tiger embosser (mentioned in Chapter 5). The alternative formats manager, Colin, who could not read Braille and did not have knowledge of university level mathematics himself, typed up the materials he was given using MathsType in Word using DotsPlus and a Tiger embosser. No student users took part in my research, however, so it is not known if this was more reliable than using LaTeX, or if similar errors occurred.

Methods used by students

Student respondents used a variety of methods to access mathematical notation; including large print of various sizes and human readers. Most interesting were the four Braille readers, as they each employed different tactics. One student had his maths turned into ordinary English 6-dot Braille (Scott, computing-based postgraduate, University B, blind). For example, instead of 'A + B = C', the Braille would say 'capital a plus capital b equals capital c'. This is a very simple example, and the student concerned only had a small amount of maths in his course, but he did find this approach challenging. Another student used a variation of LaTeX code, where the formatting commands are removed to leave only the maths, some of which is the abbreviated to make it more concise (Richard, computing-based undergraduate, University D, blind). For example, \frac became \f. As the abbreviations were of his own choice, this output would have been almost impossible for anyone else to interpret. He then read this in an 8-dot Braille version of his native language. The final two students used a software script to modify LaTeX code so that it could be more reliably turned into 6-dot mathematical Braille. One then read this using a Braille display attached to a computer (David, maths-based undergraduate, University A, blind) whilst the other preferred it to be embossed on paper (Jim, psychology-based postgraduate, University A, blind). All four students worked with transcribers to produce formats they could read and understand. This required significant time commitments from them and Richard was particularly frustrated by this (see Section 6.3.1).

It clearly took a lot of trial and error for these students and the staff transcribing for them to find methods that worked. These are unlikely to be useful for other students, however, as the method of producing and accessing the notation was so vastly different as it was specifically tailored to each individual student. The individual nature of the adjustments made were clearly very important to these students, and when different types of

Braille were produced, often accidentally, this caused them difficulties as they could not read it at all.

Screenreader access

Issues associated with screenreader access to mathematical notation are also complex (Archambault, Fitzpatrick and Miesenberger, 2007). Most electronic formats, including web content, are actually images of mathematical notation, and so screen readers cannot extract any information. Mathematical notation can be displayed on web-pages as MathML (a mark-up language) which requires either Internet Explorer with the MathPlayer add-in installed or Mozilla Firefox with the correct fonts installed. MathML allows users to zoom in on the mathematical notation or have it read aloud while the item being spoken is highlighted. MathML can also be accessed by screen-readers such as JAWS (Cliffe, 2010; Cooper, 2006). All these things mean that MathML is potentially very useful for print disabled students and some respondents felt that it was the way forward. There are, however, two types of MathML, content MathML which basically describes symbols in terms of what they look like and presentation MathML which encodes semantic meaning so instead of reading 2^3 as 'two superscript three' or 'two to the power of three' it would say 'two cubed'. This is a simple example, and in many cases semantic meaning is not required, but there are some cases when mathematical notation in presentation MathML can be ambiguous when read by a screen-reader.

Very little material is currently available in presentation MathML, let alone content MathML and most non-print impaired users do not require it. Hazel, felt that encouraging MathML use was difficult and she said that "to be honest [...] you're not going to get anyone [in an academic context] to use MathML" (Hazel, disability support worker, University D). She felt that people will only start producing MathML when people start asking for it, and they will not start asking for it until they have had experience of accessing MathML and they will not get this because so few people produce it and so this "becomes a vicious circle" (*Ibid.*). She said that without MathML, however, mathematical notation will never become as easy to handle as Standard English text. She said:

> ... we can cut and paste [Standard English text] we can spell check [it] we can put it on the web easily [and] we can OCR it.

> The mathematics is kind of stuck [...] and we can't do any of that, MathML is the only possibility for that at the moment.
>
> *Hazel, disability support worker, University D.*

Scanning and performing Optical Character Recognition (OCR)

Part of the problem in term of transcribing materials containing mathematical notation is that scanning hardcopies is very difficult as standard OCR programs cannot handle it. Hazel had tried software called InftyReader that could do this in certain circumstances but she said it was unreliable and could not be used unless the material to be scanned was in a very specific format and of exceptionally good print quality. Since publishers were very rarely able to provide materials in LaTeX or MathML format this made access very difficult.

Commonly produced formats

Academics produce materials in variety of different formats, and these were rarely ideal for transcription. At University A this was generally Equation Editor or MathType in Word, but occasionally LaTeX. At University C this was generally hard copy, which Colin, an alternative formats manager, then reproduced in MathType although he had very little knowledge of mathematics. At University D, formats included LaTeX or hardcopies originally produced in LaTeX, as well as some that were handwritten or produced on typewriters. Producing materials in LaTeX, which is, on the whole, the most practical solution, would greatly improve the ease of transcription. Given the amount of work this would create for many academics, especially those who still handwrite their lecture materials, and the difficulties that remain even if this format is available, this is unlikely to be considered a reasonable adjustment.

Summary

The non-institutional barrier of accessing mathematical notation is clearly a very difficult one to overcome. Technologically speaking there are difficulties: no completely reliable systems exist to convert mathematical notation to Standard English Braille; re-typesetting of large print needs doing manually; and screen-readers have difficulty accessing mathematical notation. All of the student respondents who needed to access mathematical notation had their own ways of doing this and required different responsive individual adjustments to be made for them. Despite huge amounts of effort on the part of both students and disability support staff they all reported that there were problems. The adjustments that were made were generally the most appropriate ones that were currently possible, and therefore were the only 'reasonable' options, but they were not often good enough to be truly effective. This is clearly an issue that still needs to be addressed.

6.2.2 Barriers are not always easy to classify and explain

As was explained in Chapter 1, the barriers experienced by print disabled students can be classified primarily as either institutional or non-institutional. Both categories contain barriers of different types, including physical, practical, technical, logistical and attitudinal. This section discusses some of the main barriers described in Chapter 5 and considers how they can be further classified and described.

6.2.2.1 Institutional barriers

Problems that arise from running assistive technology over university networks are generally logistical ones. They are institutional barriers as in many cases these problems could have been anticipated when the networks were set up or when later improvements were made. Of course, they are also practical barriers as a suitable alternative would have to be found, and they have financial implications too which may also lead to barriers.

Difficulties transcribing university documents are generally caused by institutional barriers, but these are of several different kinds. Sometimes there are no practical or logistical reasons why these cannot be created and stored electronically in anticipation of future transcription, and often it is possible to create common alternative formats in advance. Reasons why this does not happen are complex. Staff often do not realise this may be required, perhaps because they do not realise current formats are inaccessible and that it is possible to make simple changes to improve this, or because they expect that this adjustment would be handled later by the alternative formats service. Even if they know this is required, they may not know how to produce documents with improved accessibility, or may feel they do not have the time or other resources to do so. As is discussed in Section 6.2.2.2, there can also be practical difficulties that are non-institutional, particularly those that relate to the production and transcription of materials containing mathematical notation.

As has been discussed numerous times in this thesis, the biggest problem for students and for disability support staff was obtaining reading lists, lecture notes and other materials from lecturers in advance. There are clearly practical difficulties for staff in terms of the time available for them to spend on teaching. It seems however, that once the reasons why is is important are fully explained, and they understand the affect no doing this has on students, most are able to provide these materials. This suggests that it is to some extent an attitudinal barrier.

6.2.2.2 Non-institutional

As was explained in Chapter 5, DSA medical evidence policy forces DSA needs assessments to be conducted within a Medical model framework, although assessors generally do their best to shift the focus back towards a social model understanding of disability. This is an attitudinal barrier on the part of DSA funding bodies, as other funding for adjustments, such as the Access to Work scheme, do not require this.

Difficulties obtaining suitable electronic copies of externally produced materials cause a lot of problems for staff and students. This is to some extent an attitudinal barrier, but clearly providing these isn't as straightforward for publishers as may be assumed as there are practical and logistical barriers too.

The issues of converting PDFs, particularly those containing maths or graphics, into editable electronic format that can be transcribed is a practical barrier. This is technologically difficult at this time and although work is being done to try to improve this, Cliffe suggests that this is hindered by "the slow impact of research and development on both mainstream and assistive technology and by the difficulty of deploying current developments on the ground" (Cliffe, 2010, p41). As was revealed in Chapter 5, staff were often unaware of the problems until they tried to make adjustments and Cliffe found that "it was common for staff to believe that mathematics in electronic formats was already accessible which can hinder the use of human support to allow access" (*Ibid.*)

6.2.3 Differing types and degrees of adjustments are required

Respondents' accounts suggest that more effort was required to make adjustments for students with visual impairments than for students who have dyslexia. It was often the case that once adjustments were in place for students with visual impairments; this also made it easier to make them for students with dyslexia. For example, when asked about adjustments for students who have dyslexia such as handouts in advance one disability support-related respondent said:

> In general we don't have copies of the notes for any random module, but anything that the two blind students have done we do now have a typed copy and so it has been very straightforward to give them a copy of that.
>
> *John, maths-based DDO, University A.*

This is perhaps because the nature of dyslexia means that adjustments can be more standardised, as the range of formats required for students who have dyslexia was less varied. On the whole, the universities studied seemed better able to manage the needs of students who had dyslexia than of students with visual impairments. John said that as a result "dyslexia, generally speaking, is not considered an insolvable problem" (John, maths-based DDO, University A). It seems that the universities studied were also more easily able to meet the needs of students who had low vision than students who were blind, and it was clear that the latter group generally required more support than the others due to the complexities of producing and accessing materials in non-visual formats.

The differences between students with different impairments were not clear cut however, and the generalisations made above are an oversimplification. Although the adjustments required could generally be placed on a continuum with dyslexia at one end, low vision in the middle and blindness at the other, there were exceptions. For example, Judith, who had low vision, received fewer adjustments than any of students who had dyslexia, and Vicky, who was blind, received fewer adjustments than most of the students with low vision.

Regardless of their underlying impairment, students faced very similar barriers, but the adjustments they required varied enormously. To some extent these depended on how inclusive their courses were and how ready and able staff were to accommodate their needs.

6.2.4 Many different perspectives and perceptions exist

Having examined the experiences of not only students but three categories of staff, this research has revealed that the four groups have different perspectives on and perceptions of barriers and adjustments. This can be illustrated by considering perhaps the biggest source of dissatisfaction for students: problems obtaining advance notice of reading lists, and copies of lecture notes and other materials from academics.

6.2.4.1 From the disability support staff perspective

Several disability support staff respondents said they felt that academics did not understand what was involved in producing alternative formats and so were not very responsive to requests for materials in advance. One said:

> There is a misconception as to how easy or difficult it is to reproduce materials in alternative formats. I think that people think that you just shove it through a scanner, push a button and out it comes at the other end. They don't appreciate the amount of editing that is often involved. So we never find that we get materials in enough time for students. I mean across the board. For individual students we do find that some departments are very proactive and will get us all the materials in advance. Often that depends on the type of subject and whether it's somebody who has been teaching it for years and has all the resources beautifully done up on the computer already or [if] they've lots of photocopies of what they already use.
>
> *Susan, disability service adviser, University A.*

Susan said that she had spoken to an academic who provided a long reading list one week in advance of each seminar and asked students to choose what they wanted to read. When Susan explained to her that this approach would not be suitable for the student with a visual impairment she would be teaching the academic changed her approach. Susan felt that in general it is "difficult changing the mindset of tutors" and indeed this is also what Riddell, Tinklin and Wilson (2004) found (see Chapter 2).

Staff respondents who produced alternative formats said that their workload was not consistent across the year and that it tended to be busiest at the start of terms/semesters and just before examinations. They said that this could be relieved if sufficient advance notice of materials required was given to allow workload to be prioritised. One disability support respondent said, however, that this rarely happened:

> ... you can be waiting quite a long time for the information you need to actually start doing something and you know the clock is ticking that these resources are going to be needed but this doesn't change the fact that you don't have the information yet. [...] We start, dare I say, badgering the lecturers quite early but if the lecturer hasn't written the course yet, there's not much you can do about it.
>
> *Hazel, disability support worker, University D.*

Staff generally asked students (and academics) to give them as much notice as possible, in some cases as much as six weeks. If this was received it allowed the alternative formats service to give students indications of how long it was likely to take to respond to each request:

> We don't have any sort of procedural thing down. If a student says I want this and I'll sort of formulate in my head workloads of how much have we got on, how many support workers have I got coming in and then I'll say "when do you need it by?" and if they say "end of the week" I'll say "why do you need it by the end of the week?" try and pin them down to how urgent that is. And if they need it by the end of the week I will do my utmost to get it by the end of the week and I'll usually meet their deadline depending on the size of the text of course.
>
> *Jackie, alternative formats manager and disability service advisor, University B.*

To add to the pressure on academic staff, the effort to mainstream disability provision means that several of the universities now require academic staff to provide large print or accessible electronic formats of their materials, on request, themselves. One disability support staff participant said that "the actual responsibility to produce lecture handouts etc. lies with the actual department" but he admitted that he had to "actually check up on them to make sure that the materials are being provided in that format" (Charlie, social science-based DDO, University A). This was also the case at University B, where a disability support staff participant said that "sometimes we get some resistance from the lecturer that they haven't got time to convert stuff for one student etc. or they've handwritten it so they can't produce it electronically. So we will help those lecturers and that student to get that material" (Jackie, disability service adviser and alternative formats manager, University B).

One disability support staff respondent summed this problem up very well. She said:

> There needs to be some kind of institutional awareness, understanding but also acknowledgement of what they have to do in the [academic] department. [It isn't acceptable to say] "oh, I'll send it to [the disability service] and they'll deal with it." This is a partnership between the [disability service] and the Academic Department. [...] It's difficult to get a lot of things done in Higher Education because [...] lecturers are quite independent and how they style their lectures, how they deliver the course, there's no centralized control. [...] When people don't have the awareness the point is it can make it even more difficult.
>
> *Hazel, disability support worker, University D.*

6.2.4.2 From the student perspective

Many student participants said they had difficulty accessing lecture notes and other materials as they were provided in standard-format print. As a result, many asked for these in advance so they could access them using their assistive technology or have them transcribed. This is a well recognised reasonable adjustment, and when asked many academics agreed to do this. Student respondents explained, however, that these did not always materialise. One student participant with a visual impairment said for example, "it was great to get notes on disk but some lecturers never bothered to do it" (Kathryn, psychology-based postgraduate, University E, blind). Another echoed this, saying "I've asked them for them and they've been like yes and when the time's come [they've] not given me them" (Caroline, media-based undergraduate, University E, blind). She suggested this was probably just "bad planning" (*ibid.*). A third had a similar experience but emphasised how important these are to her understanding of the lecture. She said that the two most useful adjustments were:

> ... handouts in advance from lecturers [and] lecturers drawing attention to important points on their PowerPoint slides so I do not miss out on important information, such as names of cases. Lecturers however often forgot to make these adjustments.
>
> *Mandy, social science-based undergraduate, University E, blind.*

The consequence of not being given lecture notes and other lecture materials in advance was that student participants found the lectures harder to follow, and this had the potential to affect their performance in assessments. One student participant with a visual impairment said: "there's probably quite a strong correlation between the lecturers that don't use electronic notes and the exams I do badly in" (Steve, science-based undergraduate, University D, low vision).

Whilst problems with the adjustment of providing lecture notes and other materials in advance was a source of dissatisfaction for many students, not all felt this way. One student participant with a visual impairment had a more positive experience, and he said: "normally I get the lecture notes or the [Microsoft] PowerPoints emailed to me... in most cases it's before the lecture, so I can read them beforehand" (Scott, computing-based postgraduate, University B, blind). When this adjustment was made all the student respondents said they found this invaluable.

6.2.4.3 From the academic staff perspective

Staff respondents who were academics themselves felt that disability support staff, such as Susan above, did not understand the pressures they were working under. Some academic staff admitted that they, or other academics in their department, were not always very good at providing materials in advance. In some cases this was because staff were producing their materials 'at the last minute' and so they were not ready to be provided to students or the alternative formats service in advance. One disability support related staff respondent said that in terms of providing materials in advance:

> ... that is where possibly we fail to provide the best service possible. [...] Sometimes you have a new lecturer, who has not created their work a whole year in advance, who will create things [at] the last minute. So it's very difficult to [explain] to them that they need to do their work in advance so we can provide the work that's going to be discussed in advance to students in their preferred format. So although we have the [guide from the alternative formats service that] states that need, that we've circulated to staff in advance etcetera, [...] I wouldn't say that this is working the best it could be.
>
> *Jessie, psychology-based DDO, University A.*

She explained that this is the 'reality' that many academics experience and whilst "in theory our policies state that we should be doing this and that ... in practice often it's very difficult to do it" (*ibid.*)

Although it was a common problem, lack of time to prepare materials was not the only reason academics could not always provide their materials sufficiently in advance. One disability support related staff participant pointed out that in some subjects the issues change frequently so handouts and reading lists may be prepared 'at the last minute' so that they are as up to date as possible. He said:

> One problem we have in getting stuff from the academics is the way they work basically, when they do their handouts they often leave it until the last minute, because [this subject is] always changing and they obviously want to reflect the most up to date [issues], so it's trying to get a balance between those two things from the support we need to getting the information as up to date as possible.
>
> *Charlie, social science-based DDO, University A.*

6.3 Observations on staff and student accounts of their experiences

Respondents gave very mixed messages about how they felt about their experiences. As a collective group, they pointed to the many difficulties they had faced and their frustration with these, but they also praised other staff for their assistance at times, and provided examples of adjustments that had worked well. This was also true of individual respondents, as their accounts suggested that each had experienced a mix of adjustments; those that had worked well, and those that had not, those that were simple to implement and those that were much more difficult. They had also encountered others within their university who either assisted in making adjustments, or were in some way responsible for creating barriers.

6.3.1 Students

Student respondents often talked about the extra work they had to do and the additional effort they had to expend to achieve the same result as other students, and some were concerned about the negative effect on their studies. Most gave at least one example of adjustments that had not been made or that were not appropriate or effective, and the majority of their negative comments related to receiving alternative formats. In many cases these problems resulted in the need for the student to do extra work or expend extra effort, as with scanning documents themselves, checking for errors in documents, problems with materials, asking for help and making documents accessible. In other cases they made studying harder. These are problems that most students who had not been diagnosed with print impairments do not have to contend with, and SENDA was designed to 'level the playing field' so that such problems did not occur. It is concerning to see that this has not been achieved in all cases and a number of significant problems still remain.

Several students' accounts included praise for staff who had supported them. Despite his many complaints about the alternative formats service, one commented that "the university people are definitely helpful" and his department "does try very hard and I appreciate it" (Jim, psychology-based postgraduate, University A, blind). Having experienced his own accessibility problems as an undergraduate one student was now doing a Masters by Research which his university had set up for him specially and he was "most impressed" with this (Scott, computing-based postgraduate, University B, blind). He also described the notes one of his notetakers produced as "absolutely fantastic" (*Ibid.*). Another student asked an academic not to write in red as he struggled to read it because of his colour-blindness and was very pleased with the response: "he sounded sounded quite interested in the subject as if he was going to go off and do some research about it and think about it more in the future" (Graham, computing-based postgraduate, University B, colour-blind).

They were also quite critical of those who had not supported them as well as they had expected. These comments were usually directed at academics who students felt did not understand their needs. One said that "not all of the lecturers are aware of my situation [being registered blind] and I think they could probably improve on a few things" (Simon, computing-based undergraduate, University B, blind).

Students often seemed resigned to the situation. For example, one student who had had to rely on lecture notes and other lecture materials instead of text books said:

> In an ideal world it would have been possible to get books in a suitable form for [...] Braille transcription or even in Braille [already]. But unless anyone is actually going to do it or publishers are going to be more willing to let a suitable format be got electronically it's not really going to happen.
>
> *David, maths-based undergraduate, University A, blind.*

In response to a question about how he feels about the extra work he said he had to do another replied: "on a bad day I feel totally sick and you often want to give up. But it would be wrong to give up and and I'm quite stubborn so I try to persevere" (Richard, computing-based undergraduate, University D, blind.) Richard's use of words such as 'stubborn' and 'persevere' are similar in tone to those used by Paul (psychology-based postgraduate, University C, blind) in Chapter 5 how he needed to be 'proactive', 'pushy' and 'hassling'.

Clearly some students were unhappy or dissatisfied with their experiences, although to varying degrees. Most projected this emotion outwards, towards a society that does not take their needs into account, and this was true even if they did not fully understand the ideas behind the social model of disability. A few students seemed to understand disability more in terms of the medical model, and so laid their blame on their impairments or even on themselves in a more fundamental way. This was particularly true of Steve (science-based undergraduate, University D, low vision). As was noted in Chapter 4, he described a reasonable adjustment as "something where an adjustment is made that in combination with effort from the individual [overcomes] a problem caused by the individual's disability" (Steve, science-based undergraduate, University D, low vision). He mused over whether or not he felt he was disabled, and replied that "I'm disabled in as much as the fact that I can't do everything that a fully able bodied person would do" (Steve, science-based undergraduate, University D, low vision). He sounded slightly bitter when he said that he finds it "hard to understand when people say they almost don't want a cure because [their disability is] a part of them" (*ibid.*). Instead he admitted he longs "for a day when they'll be able to cure my eyesight... my whole quality of life would be so different" (*ibid.*). Clearly his personal experience of disability is a difficult one, and he would prefer not to have a visual impairment. The version of the social model employed in my research does allow for 'cures' if the disabled individual desires them, and clearly Steve does. From his account, however, it is likely that it is not his visual impairment *per se* that he dislikes but the disabling effect that he experiences. Although Steve did not seem to recognise the social model himself, it could be argued that this model would be a useful way for him to come to terms with his situation and to see a way forward that does not involve the restoration of his sight.

6.3.2 Staff

Staff respondents were generally frustrated by the difficulties they encountered when they tried to implement adjustments, and tended to focus on these rather than on any positive outcomes they had achieved. For some, there had clearly been "disappointments massively along the way" (Hazel, disability support worker, University D) and many said they wished there was more they could do. Despite their hard work, many felt dissatisfied or disappointed with what they had achieved and one commented that "it's not really satisfying when you can't help them [students]" (Eric, science- and computing-based subject librarian, University B). Disability support staff described a constant battle to encourage the mainstreaming of disability provision and the recognition that it is no longer the sole preserve of the disability service to make adjustments. They often had to highlight to other staff, particularly those in academic departments, that they too have a responsibility to make adjustments and that without their support any adjustments they recommended or set in motion will not be fully effective. The introduction of DDOs had clearly helped improve this understanding, but it was obvious that many DDOs were putting in an incredible amount of time and effort to achieve results, and were still encountering their own difficulties with colleagues.

It was clear however, that provision was beginning to move outside of the disability support service and beyond the DDOs. These staff were also working to spread this idea to their colleagues, but one commented that it is hard to "kind of keep that sort of awareness going, especially if it is not particularly your job" (Eric, science- and computing-based subject librarian, University B). In some departments the message was beginning to get through. For example, University A had moved towards creating and storing electronic copies of the information leaflets available in libraries in order to improve access for print disabled students. Some staff respondents felt that there was beginning to be a recognition, as was claimed in many of their DES, that disability equality was something all staff members had not only to promote but to evidence in their work. One DDO felt that her department had achieved this and said:

> Overall I'm pleased with the attitude of our school, we don't have to fight the battle to say that disability is something core. It's not something that the [DDO] is dealing with in isolation, but it is something that is everybody's responsibility and interest.
>
> *Elma, education-based DDO, University A.*

Despite this she felt that their hard work was not appreciated or recognised, and complained that: "you never get praised any more" but added that "if you know you've followed procedure and you've made the effort to try and make reasonable adjustments then you're halfway there." (Elma, *ibid.*).

6.3.3 Why were students not more critical?

Although students outlined a range of difficulties they had encountered, they were on the whole fairly satisfied with their experiences. This is true even of students such as Vicky, who had not been offered transcription even though she was a Braille reader. Instead she scanned her own documents and gathered as much information as she could from the internet. It could be that the low expectations described by Burchardt (2005) in Chapter 2 are responsible for this. If students expect there to be problems implementing adjustments, and are aware they may receive less than satisfactory adjustments, they are perhaps less likely to be critical when they experience these than students with higher expectations. In addition, if their experiences of pre-16 education were less than ideal, as was suggested in Chapter 5, they are unlikely to expect much more of post-16 education. In Chapter 2, Madriaga, 2007, suggested that students' expectations may be affected by whether they see disability as a social or individual issue and this did appear to be the case in my research. Students such as Steve (science-based undergraduate, University D, low vision) who appeared to favour a medical model approach to disability tended to blame their impairments for any problems, and were less critical than other students of the adjustments they had received and the attitudes they had encountered. Students such as Scott and David who clearly adopted a social model approach to disability and understood the responsibilities their universities had under DDA 1995, were among the most critical. They were frustrated at the institutional barriers they experienced, but seemed to understand why these existed and what was being done to overcome them. They expected all staff to be aware of their duties towards disabled students, and both had been actively involved in increasing awareness themselves. They were less understanding of the non-institutional barriers they experienced because of difficulties with publishers, and were highly critical of these.

6.3.4 Why are staff not more satisfied?

Staff respondents often explained in detail the lengths they had gone to to make adjustments for print disabled students and the difficulties they had faced. Those who understood and adopted the social model understanding of disability, which the majority did, were very critical of those who created additional barriers or made adjustments harder to implement. Susan provided a particularly good example of this, as she recounted how the medical model approach manifest in DSA funding and the model of disability evident in the legislation both hampered her ability to do her job in a way that reflected the social model that she believed in. Mike (maths-based academic, University B) on the other hand, clearly wanted to help print disabled students and the fact that he volunteered to take part in my research shows that this desire was genuine. His comments suggested a certain level of naivety about disability issues, and his medical model approach often led to him questioning or asking inappropriate questions about the rationale behind adjustments, and even the increased frequency of dyslexia diagnoses, during his interview. As a result he was fairly satisfied with the adjustments he was making and did not identify any real problems with making these.

6.4 Conclusion

This chapter, along with those that precede it, has argued that despite SENDA 2001 provisions print disabled students still experience significant difficulties accessing materials. The social model of disability which underpins my research places the responsibility for creating and removing barriers on society, and clearly each university can be seen as a microcosm of that society. As a result universities have to accept liability for the creation of some of the barriers print disabled students face and have a responsibility to make adjustments to remove as many as they can. It does not necessary follow, however, that universities and their staff are entirely to blame for the difficulties print disabled students still face. Despite good intentions, some barriers remain practically or technologically difficult to overcome and many are non-institutional in nature and so fall beyond the full control of universities themselves.

Whilst it is possible to talk in theory of the different types of barriers, it is in fact difficult to describe most barriers as purely attitudinal, physical, etc, and it is almost impossible to state where one type of barrier ends and another begins. What is clear from my research is that overcoming the primary barrier of standard-format print, actually involves tackling many sub-barriers, and when attempting to implement adjustments, further barriers may be encountered. Despite this, it can be seen that some adjustments are made more difficult to implement by a lack of understanding about what an adjustment involves and what is required from each key player. Whilst disability support staff said they often encountered difficulties getting other staff to make adjustments, this was primarily because they did not feel it was their job, or because they felt they did not have the time. It was not because they did not feel that print disabled students are entitled to such adjustments. Nevertheless, these justifications for not making adjustments are still examples of attitudinal barriers, and both print disabled students and the staff that support them have to overcome these in order to successfully implement adjustments.

In theory, institutional barriers should be easier to overcome than non-institutional ones as university staff themselves have the power to overcome these. My research has shown however, that despite the good intentions outlined in the four universities' 2006 DESs both institutional and non-institutional barriers remain significant obstacles for many students. As a result, many staff respondents felt dissatisfied with, and were very critical of, the support they were able to provide for print disabled students, even though students respondents themselves were generally satisfied and relatively uncritical.

Although there were differences between staff and student accounts, these seemed fairly consistent across the four universities studied and there were few apparent differences between institutions. Student accounts at universities A, B, C and D were also very similar to those of the additional student respondents from other universities. The only notable difference was the higher incidence of complaints about the alternative formats service at University A than at the other universities studied. This is believed to be due in large part to the amount of mathematical notation the service was required to produce and the difficulties associated with this. The alternative formats services at the other three universities were also heavily criticised by students, although my research suggests that difficulties tended to arise due to factors beyond their control such as the provision of materials from academic staff and publishers. Despite the similarity of accounts given during my research, it is possible, and perhaps even likely, that differences do exist between institutions and could be drawn out by a larger scale study.

Whilst SENDA 2001 pushes for more anticipatory general adjustments, it can be argued that these are less useful to print disabled student than other disabled students. The main barrier print disabled students face is the widespread use of standard-format print, and whilst it is true that it is possible to make standardised adjustments to remove barriers for some impairment groups (e.g. improving accessibility for those with mobility impairments by setting a minimum doorway width) the same is not true when it comes to accessing materials. There is no minimum font size that will guarantee all print disabled people can read all materials, especially as many cannot read print no matter how large it is. Although clearprint guidelines can improve readability for many, the underlying impairments experienced by the students in this study mean that the majority would not benefit enough for this barrier to be removed for them. Standard-format print is often created very badly with little thought given to the needs of print disabled people. Nevertheless, even when it is created with accessibility in mind there will still be a significant proportion who do not benefit. Thus general anticipatory adjustments are unlikely to significantly improve equality for this group.

Even if individual and responsive adjustments are made, my research has shown that print disabled students are still not guaranteed access to materials. Indeed, I started this research believing that all barriers can be overcome if the correct adjustments are made, and that the clause 'reasonable' was in itself a barrier to equality as it provides a method of justifying situations where adjustments are not made or are not made well. Respondents did not appear, however, to use it in this way, and this may suggest that despite reservations regarding the model of disability evident in their DESs staff were actually employing a social model approach to what is reasonable. What also became evident from talking to respondents is that some barriers are inherently very difficult to overcome, and would be so even if resources were endless. This is compounded when barriers are part or in full non-institutional ones as universities have less control over these and the legislation is more lenient.

Whilst the experiences of print disabled students are clearly in need of improvement, it is not altogether easy to say how this can be done. Despite the claims made in the 2006 DESs that all staff have a responsibility to promote equality and prevent discrimination, this obligation does not yet seem to have filtered down to all staff. This may simply take time, but it seems likely that further initiatives will be required, and that there will need to be some recognition of the additional time it may take academic staff to explore ways to teach more inclusively in the early days, even if this later becomes an intrinsic part of the way they work. The very nature of higher education and the importance it currently places on the written word and the accessing of large amounts of written materials may also need to be revisited to ensure that print disabled students are not discriminated against or otherwise disadvantaged.

The changes made by the Equality Acts 2006 and 2010 to strengthen and simplify the law in relation to protected characteristics such as disability are likely to encourage universities to explore the ways in which policies can be reflected in practice, and this will no doubt benefit students in the long run. Similarly, these legislative changes place greater obligations on private companies and organisations, and the changes in policy and practice evident in higher education are likely to be reflected in them in time. The improvements that have been made in higher education since SENDA 2001 have taken time, and it is likely that the same will be true in non-institutional settings as companies and organisations begin to respond to the new legislation. This may eventually result in print disabled students experiencing fewer non-institutional barriers.

The one change that would have the biggest effect on the experiences of print disabled students and the staff that support them, however, would be the widespread adoption of the social model of disability. Whilst staff and students who adopted this model tended to be less satisfied and more critical of adjustments, which can be seen as a disadvantage, this also meant they were more proactive in seeking improvements. This model also has the potential to help staff who currently feel adjustments belong solely within the arena of disability services to see why this will never be enough to bring about a significant reduction in the barriers print disabled student face. This requires an attitudinal change for many, and as has already been highlighted in this thesis attitudinal change can be very difficult to affect.

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7. Conclusion

7.1 Research purpose and design

7.1.1 Research questions

This research set out to explore the experiences of print disabled students and the staff who support them. A project was designed with the social model of disability at its core which aimed to answer the following research question:

> What barriers do print disabled students face, what reasonable adjustments are made to overcome these barriers, and how do staff and students feel about these barriers and adjustments?

To make it more manageable, this main question was broken down into six parts:

a) Which models of disability do universities, staff and students utilise?
b) What adjustments are made for print disabled students and in what situations are they necessary?
c) What problems arise with the implementation of adjustments?
d) How reasonable are the adjustments made?
e) How satisfied are staff and students with these adjustments?
f) How far do the expectations raised by particular models of disability affect staff and student perceptions of adjustments?

7.1.2 Legislative background

The main piece of disability legislation governing higher education at the time fieldwork began was the Special Education Needs and Disability Act (SENDA) 2001 which required universities to make 'reasonable' adjustments. It did not define what made an adjustment 'reasonable', but it did provide an outline of what should be considered, and when adjustments should or should not be made (more details can be found in Chapter 2). Universities had to make reasonable adjustments to ensure that they did not discriminate against disabled students (or prospective students) or place them at a "substantial disadvantage" (SENDA 2001, s28T(1)). Universities could only justify not making a reasonable adjustment if their reasons for doing so were "both material to the circumstances of the case and substantial" (SENDA 2001, 28S(8)). When deciding whether such treatment could be justified, SENDA 2001 specified factors that could be considered, for example: cost; impact on other students; academic standards; health and safety; other services and auxiliary aids available; and whether or not a student has disclosed their disability. The Act also placed an 'anticipatory duty' on universities, meaning that they not only had to consider the needs of current disabled students but the needs of potential and prospective students as well.

Until SENDA 2001 disabled higher education students had little protection under the law even though the Disability Discrimination Act (DDA) 1995 placed the obligation on providers of goods and services to ensure it was not "impossible or unreasonably difficult" (DDA 1995, s.21 (1)) for disabled people to access them. SENDA 2001 was important as for the first time it required universities to make adjustments to ensure that disabled students were not placed at a "substantial disadvantage" (SENDA 2001, s.28T (1)).

7.1.3 Interpretation of 'reasonable'

As was explained in Chapter 2, the way in which the term 'reasonable' is interpreted depends to some extent on the model of disability used, and research questions a) and f) were designed to explore this relationship. The social model of disability is frequently adopted by academics researching disability and higher education (see for example: Tinklin, Riddell and Wilson, 2004; Healey *et al.*, 2006) and all four of the universities studied claim in their first Disability Equality Statements (DESs) that this is the model they have adopted. In addition, the adoption of the social model is a pre-requisite of the Emancipatory Research Paradigm which is generally seen as the Gold Standard for research carried out within the field of disability studies (Barnes, 2003, p.6). As a disabled person myself it was very important to me that my research provided a potential benefit to my participants and represented the views of disabled students as far as possible.

My analysis of the disability legislation, backed up by comments made by Fuller, Bradley and Healey (2004, p. 456), suggest that SENDA 2001 relies on a definition of disability that reflects the medical rather than social model of disability. Although it does recognise the impact of "environmental factors" (DRC, 2007, pp. 114-5), this legislation can been seen to occupy a central position somewhere between the medical model, which leads to a very strict interpretation of what is reasonable, and the social model, which suggests a much more generous interpretation.

The models of disability adopted by my participants varied greatly, but it did appear that those who adopted the social model interpreted the word 'reasonable' in a more generous way and therefore had higher expectations of what adjustments can and should achieve. Conversely, those who adopted the medical model were more likely to be satisfied with less generous and often less effective adjustments. Whilst all four universities claimed in their DESs to adhere to the social model of disability, the documents themselves suggested that only one did so fully and consistently. The other three policy documents suggested an approach more closely aligned with the model of disability suggested in the disability legislation, which is perhaps to be expected.

7.1.4 Gaps in previous research

Previous research into disability and higher education has tended to focus on disabled students as a homogeneous group. The number of print disabled students included in such studies is impossible to establish. Students with dyslexia were well represented in the three studies that formed the starting point for my own research (Tinklin, Riddell and Wilson, 2004; Fuller *et al.*, 2004; and, Healey *et al.*, 2006), but students with visual impairments were not. For example, Fuller *et al.* received 173 responses to their questionnaire and only 0.8% of the participants indicated that they were 'blind/partially sighted' (Fuller *et al.*, 2004, p.310). Some studies have attempted to compare disabled and non-disabled students (see for example: Burchardt, 2005; Richardson, 2009) but few, if any, have considered how well the experiences of disabled students that have so far been elicited reflect the experiences of print disabled students.

The limited research that has been carried out into dyslexia (see for example: Cottrell, 2003; Riddick, 2001; Pollak, 2005) and visual impairment (see for example: Roy, 2003; RNIB, 2004) has generally focused on only one impairment group rather than exploring the commonalities evident amongst all students who experience difficulties with standard format print. Cottrell, does suggest, however, that "the dyslexic person is in a similar position to a partially sighted or blind person" (Cottrell, 2003, p.122). Similarly Riddick highlights the case of one 13 year old boy with dyslexia who, in response to being told by his teachers that he must try harder, "pointed out that they wouldn't tell the child with partial sight in his class that he must 'try harder' to see" (Riddick, 2001, p230). Evett and Brown (2005) also highlight the similarities between guidelines on producing accessible materials for people who have dyslexia and those with visual impairments, and suggest that it is possible to produce materials in a format that will suit a large number of individuals. Literature outlining the types of adjustments that may be needed for students with either type of impairment (see for example University of Nottingham 2006a and 2006b) also suggest that there are significant similarities between the two.

What is missing from the research described above is an exploration of the way in which "the privileging of the written word in British higher education" (Tinklin, Riddell, and Wilson, 2004, p. 654.) presents a common barrier to all print disabled students. Similarly, although Tinklin, Riddell, and Wilson acknowledge that "some disabled students' needs are unique and would be impossible to anticipate" they and others often promote general anticipatory adjustments as an antidote to the often *ad hoc* provision that many individual students receive, yet little, if any, research has been conducted into the importance of individual responsive adjustments to some students. In addition, much research found in the literature was conducted before SENDA 2001 was fully implemented in September 2005.

My research was designed as an attempt to fill these gaps by exploring the adjustments made for print disabled students under SENDA 2001. It is hoped that it will add a new dimension to what is known about the impact of SENDA 2001 and the experiences of disabled students in the new legislative environment. What is original about my research is that it places the emphasis on the disabling effect created by the widespread use of standard format print, rather than on the type of impairment that underlies a print disability. Thus it explores the experiences of print disabled students, rather than having a more narrow focus on either students who have dyslexia or students with visual impairment. It also did not restrict the types of impairment that were considered as leading to print disability, as all students who self-defined as print disabled were eligible to take part, although in practice only one student volunteered who did not have dyslexia or a visual impairment. In this way it ensured that the social model of disability remained central and the disabled students themselves were able to share their experiences from the starting point that their disability is socially created.

7.1.5 Research methods

Four universities were selected from those I already had contact with so that appropriate gatekeepers could be engaged in the study. Background information about each university's policies, practices and theoretical standpoint on disability was collected using their 2006 DES. These were used to provide answers to three questions: what is disability, and what causes it; who or what is responsible for 'causing' disability; and, whose responsibility is it to prevent or reduce the barriers that lead to disability? Semi-structured qualitative interviews were then used to gather the perspectives of 14 print disabled students and 29 staff, and electronic questionnaires containing 20 open-ended questions were used to elicit the accounts of seven further print disabled students. Interviews transcripts and questionnaire responses were then analysed using the grounded theory approach suggested by Burnard (1991).

7.2 Findings

My student participants described how they experienced barriers in relation to methods of teaching and learning, although these related primarily to the use and provision of audio-visual aids in lectures. They identified barriers in terms of assessments and self-directed study, but other than those related directly to transcription the adjustments made seem to have worked fairly well in overcoming these. Some had concerns about asking for and accepting coursework extensions, but those that did so generally found they were granted and helpful. The majority received extra time in examinations, and several found this invaluable. They did not recount any particular difficulties accessing library services, other than eBooks, and some used library browsers paid for by DSA. Generally they said that library staff were helpful, and as two librarians and one library manager took part in my research it is clear that disability issues are beginning to be mainstreamed so that such staff feel that disability issues are within their remit.

There was, however, a sense that most changes to teaching that had benefited print disabled students had done so only incidentally. For example, the drive to provide course materials via a VLE benefits many print disabled students but it can be argued that it was not their needs that were in mind when these changes were made. If it had been, there would be more consistency regarding whether or not these materials are required to be placed there in advance of lectures.

Whilst disability service staff had little if any difficulty implementing adjustments such as providing non-medical helpers and alternative examination arrangements, which were solely within their domain, problems were more likely to occur when other departments or services within the university were required to make adjustments. Throughout my research, heavy criticism was levelled at academic staff, who clearly felt that they were under a lot of pressure and so often struggled to find time to make adjustments. Several academic staff participants talked, however, of the great lengths they had gone to make adjustments and the time they had spent working with individual students. For example, in order to devote time to improve David and Jim's access to their maths-based course John had let the research side of his work "slip". He said "the actual scientific side of my research has dropped back to the bare minimum that is required to keep my PhD students [working, as well as] teaching and other staff duties." (John, maths-based DDO, University A).

My findings suggest that there seems now to be a recognition amongst academic staff that print disabled students may not be able to do as much reading as their peers, either because of transcription difficulties or for reasons more intrinsically related to their impairment. Several participants gave examples, however, where this was exacerbated by the actions or inactions of non-disability support staff. Susan's account (see Chapter 6) of the positive improvements one academic made to her teaching methods once she understood why they were not suitable for the print disabled student she was teaching, showed that staff do not deliberately create barriers for students. It would be interesting to see if these improvements have been maintained now that this student has graduated, as it is sustainable changes that are mostly likely to make a real difference.

Universities have often been criticised for making reactive changes that fail to lead to long lasting and fundamental improvements (see for example, Tinklin, Riddell and Wilson, 2004). I found evidence, however, that some attempts have been made to permanently improve the inclusivity of courses and other aspects of the university environment. For example, Chapter 5 shows that attempts have been made to increase the number of computers with assistive technology installed, and some universities have successfully networked some programs so that they are accessible to all students. In many cases, however, it seems that these good intentions have been somewhat thwarted by technological difficulties (e.g. network incompatibility) or concerns about prohibitively expensive software licences. In other cases, general changes to the way courses are run have benefited some students. For example, the introduction of VLEs and the provision of many course materials via these means that materials are available more easily to larger proportions of students. Perhaps more importantly it means that the culture of providing materials for distribution is one that is now embedded in many departments and is no longer something only done for print disabled students. Clearly the next goal should be the consistent provision of these materials in advance.

My research has shown that a variety of approaches may need to be tried in order to enable print disabled students to access materials successfully. In the case of students who are blind, in particular, these approaches often involve an element of 'trial and error' while experimental adjustments attempt to take the student's needs and the subject matter into account. Such approaches are clearly time consuming and are reliant on the inventiveness of staff and the resilience of students who must find a way to meet the demands of their courses whilst struggling to access the materials on which they rely. As a result, most print disabled students feel they have to put in more effort and do more work to achieve the same result as non-print disabled students. It is suggested that this work may be reduced via the widespread dissemination of both 'good practice' and innovative approaches (see for example: Maddox, 2007; Lewin-Jones and Hodgeson, 2004) which may remove the need for staff and students to constantly 'reinvent the wheel'.

Based on the findings so far presented in this thesis, it is argued that the needs of the majority of print disabled students can only be satisfactorily met by individual responsive adjustments. Anticipatory adjustments to attitudes and working practices that allow reading lists and lecture materials to be provided sufficiently in advance are essential foundations for this and may, as Tinklin, Riddell, and Wilson (2004, p.649) suggest, benefit all students. Most print disabled students require more than this however, since they require these materials to then be transcribed into their preferred format. Having said this, few students enjoy being 'singled out' so making this more inclusive 'adjustment' may be more palatable to some students than the individual adjustment whereby each print disabled student requests the materials they require in advance. The requirement for all academics to provide all materials in advance would help overcome what students and staff described as one of the biggest problems facing print disabled students, but it is clear that academics often have genuine difficulties doing this and it is questionable whether it is likely to become standard practice. In addition, some adjustments are necessarily individual and responsive. For example, adjustments to examinations such as papers in alternative formats and extra time are vital to many print disabled students, but granting these to members of this group does not benefit other students.

The needs of print disabled students are indeed complex and can rarely be met by taking a 'one size fits all' approach. Unfortunately, my research suggests that the "unevenness of understanding of disabled students' needs, and willingness and ability to accommodate to those needs" (Fuller et al., 2004, p316) noted in Chapter 2 still exist. Many staff members *are* both willing and able to accommodate students' needs, but accounts given by my student participants suggest that a worryingly large number have not yet reached this important stage. There is very little that legislation can do about this, as even though the four universities studied all claimed in their DESs to have made the necessary institutional changes, this does not always seem to have been reflected in practice.

Finally, this research suggests that in fact not all adjustments can be overcome. This is not unexpected in terms of the disability legislation, as any barriers that require 'unreasonable' adjustments are likely to remain unchallenged. However, by stating that society is the cause of most (if not all) of the disabling effects of an impairment the social model can also be said to imply that it can also be the solution. This suggests that there is indeed a solution to all barriers. This notion was challenged in Chapter 6 (Section 6.2.1) in relation to the considerable attempts that have been made to allow students to access mathematical notation. Taken to the extreme, it could be argued that mathematical notation was created by man, but given that spoken mathematics can be ambiguous it is hard to see what alternative is available that would be accessible to all. As more recent interpretations of the social model have allowed for impairment affects that are not caused by society (see Section 2.2.2.2) and may not be able to be overcome, it is perhaps possible that it can also be flexible enough to recognise that not all impairment affects caused by society can be overcome.

7.3 The impact of differences between institutions on student satisfaction

Although Chapter 2 revealed that provision at each university appeared to be broadly similar, Chapter 4 attempted to explore the differences between the four institutions based on their 2006 DESs. The small number of differences that were noted make it possible to reflect upon the ways in which these may have impacted on both the theoretical understandings of disability and the experiences of the students studying at each university.

In terms of alignment with the social model, only University C was felt to fully embrace this understanding of disability. The other three universities appeared to be more closely aligned with the model of disability suggested by the legislation, although this did not necessarily correlate with how seriously a university took its responsibly to make reasonable adjustments. Notably, University D stood out as the most committed to ensuring disability equality even though its DES suggested it adopted this less generous approach.

University A was the largest of the four universities, and therefore it is perhaps unsurprising that a larger number of students and staff from this university took part than from the other three. The majority of the disability support and disability support-related staff at this university seemed to differentiate between disability and impairment, and these numbers where higher than at any of the other universities. Susan (disability service adviser, University A) also suggested a potential conflict between her personal alignment with the social model of disability and the more legalistic approach she was expected to take as part of her job. No other participant from any of the four universities expressed such a considered approach, and this adds to the sense that regardless of the content of its DES, staff at University A were more consistent with their understanding of disability and displayed a greater understanding of the nuances of the social model of disability. David, (maths-based undergraduate, University A, blind) who was studying at University A was also one of only two students who displayed an understanding of disability compatible with the social model.

Despite this, University A was subjected to more criticism of its services than any of the other three universities. These criticisms were largely aimed at the alternative formats service, but as this service was involved with the transcription of mathematical notation into Braille, it arguably faced the most difficult task of all the three universities in terms of transcription. To its credit, staff were very aware of their inadequacies in this area and were working hard to improve their service. It is suggested that staff awareness of this was directly or indirectly conveyed to students, who were then in turn more likely to be aware that the current level of service was less than ideal. Also, dissatisfaction with the alternative formats service did not necessarily lead to overall dissatisfaction with the support provided.

University B was rather vague in its DES about about who or what might cause barriers for disabled students, and there seemed to be little or no recognition of the role universities may play in causing disability. University B did not have Departmental Disability Officers (DDOs), and the member of staff who displayed a view most characteristic of the medical model of disability (Mike, maths-based academic, University B) worked at this university. However, the only student to differentiate between disability and impairment (Scott, computing-based postgraduate, University B, blind) attended University B. The same student said he was "most impressed" with the adjustments he had received, so the negative aspects of University B's provision commented on above do not seemed to have reduced his satisfaction levels.

University C was very conscious of its potential to create disabling barriers and was careful to fully consult disabled students about their experiences. Its DES revealed that whilst the other three universities were wary of setting alternative assessments, University C did not see this as a problem. This was reflected in its consultation with students which revealed that the majority did not feel that assessments created barriers for them. University C had the highest percentage of disabled students, so was perhaps more aware of the potential barriers assessments could cause. Despite this, one student (Paul, psychology-based postgraduate, University C, blind) described in Chapter 5 how he needed to be 'proactive', 'pushy' and 'hassling'. This suggests that University C did not always succeed in meeting the needs of students.

Despite being the smallest of the four universities, University D's DES showed a strong commitment to 'engaging' with students, which differs from those of the other universities who were more likely to talk of 'student involvement'. One student attending University D (May, social-science-based undergraduate, University D, dyslexia) described dyslexia as "an alternative learning need" and explained that she preferred to interpret the acronym SpLD as 'Specific Learning *Difference*' rather than '*Difficulty*'. This suggested a very positive and progressive view of dyslexia not shown by any other student. However, the only student who appeared to adopt a medical model view of disability (Steve, science-based undergraduate, University D, low vision) also studied here, as did the only two students to complain about recommendations made in their DSA Needs Assessments (Emily, psychology-based undergraduate, University D, dyslexia; and Steve).

As has been shown above, there was little real difference between the experiences of the students from the four universities. Both positive and negative elements were apparent in each, and these did not seem to correlate with the content of each university's DES or the size of the institution. In many cases, a student's experience appears to depart (either positively or negatively) from what might be expected from that university's DES, but as the differences between policy and practice have been highlighted throughout this thesis this is not unexpected. This does perhaps lead to a sense that DESs may not be a very good indicator of how well a university meets the challenge of promoting disability equality, or how successful it is at making reasonable adjustments.

7.4 The positive impacts of SENDA 2001

Whilst the specific type and nature of some adjustments may vary from one university to another, it does seem that the level of provision is broadly similar. This suggests that SENDA 2001 has been successful in ensuring more consistency across universities than was previously the case. This is due in part to the considerable efforts and resources that universities have spent on making the legislation work. This includes top-down efforts such as employing staff to develop policy and implement adjustments. It is pleasing to note that universities have not, on the whole, used the term 'reasonable' as an excuse not to provide adjustments that they deem to be 'unreasonable'.

The legislative change has clearly begun to make a difference to the culture within universities, and most do seem to be on the way to a fuller acceptance of disabled students and their needs. Universities seem to be starting to accept their responsibility to 'level the playing field', and although there is still a long way to go this research was carried out only three years after SENDA 2001 was fully implemented in September 2005.

7.5 The limitations of SENDA 2001

On the whole positive changes have been made as a result of SENDA 2001, but they perhaps do not go as far as may have been hoped when it was introduced. Despite the requirement for universities to produce Disability Equality Statements (DESs) outlining the steps they are taking to prevent discrimination and promote equality, the response has been somewhat inconsistent, both between but particularly within institutions. This was reflected in previous research (see for example, Fuller *et al.,* 2004), although the overall standard of adjustments and the effort being expended to overcome barriers does seem to have increased.

The biggest limitation of SENDA 2001 is of course one that is shared with any such piece of legislation, and that is how to turn legislation into policy and policy into practice. The difficulty is perhaps that legislating against disability discrimination and inequality is only effective if those it places obligations on either accept their responsibility to make adjustments or are fearful of the repercussions if they do not do so. Once the former group have done all they can further initiatives are simply 'preaching to the converted'. The only option then is to prosecute those who do not make adjustments and/or increase their fear of prosecution or to find ways to increase the number of people who accept that they have a part to play in achieving equality. Whilst it can be argued that the latter is likely to be more effective in the long run, legislation can only be used to bring about the former. There is clearly a greater recognition that all university members have a part to play in preventing discrimination and promoting inequality, and this does seem to be steadily, although slowly, increasing. Again I return to Riddell, Tinklin and Wilson's statement that "the kind of culture change required to really make a difference [...] will take a long time" (Riddell, Tinklin and Wilson, 2004, p.24), and perhaps the full impact of SENDA 2001 will not be felt for several more years yet.

7.6 The usefulness of the category "print disabled students"

Although this thesis has been based around the shared experiences of print disabled students, it is recognized that there are also significant differences between the experiences of students with visual impairments and students who have dyslexia. This has already been touched upon in Chapters 2 and 6, but will be briefly discussed again here in terms of the usefulness of combining these two impairments into one category.

Students with visual impairments generally experience difficulties with all visual images, rather than just those presented as standard format print. As a result, they are likely to encounter a number of barriers relating to their ease of access around the university campus and within its buildings. These include, but are not limited to: crossing roads without controlled crossings; accessing lifts without audible announcements and large print/tactile buttons; accessing signage; and general navigation around a busy campus. Clearly these barriers are not limited to the university environment and are likely to be experienced to a similar degree in all aspects of the student's life.

With the exception of the possible difficulties accessing signage, these are unlikely to be barriers faced by students with dyslexia. Such students are still likely to experience barriers in everyday life, but as their impairment is less likely to extend beyond standard format print to accessing other visual images it is less likely to have the same kind of impact on their mobility and other aspects of their day to day lives.

Another significant difference between visual impairment and dyslexia is the way in which difficulties can be overcome. Students with visual impairments generally require adjustments that enable access to the content of standard format materials, but for students with dyslexia it is also necessary for the student to learn techniques that ensure that this content can be understood and interpreted correctly. Therefore the focus of many adjustments made for students with dyslexia is to find ways of overcoming their dyslexic tendencies by using alternative study strategies or techniques, including learning how to spell, proofread their work or make use of mind maps. This 'corrective' tutoring is unlikely to be considered useful or appropriate for a student with a visual impairment.

This bring us to the most important difference between visual impairment and dyslexia - the perceptions people have of those who have these impairments. As was discussed in Chapter 2, it is sometimes argued that dyslexia can be 'cured' or 'prevented' by 'proper' education, and many students with dyslexia are made to feel they are less intelligent than their peers.

It is clear, therefore, that these two impairment groups are likely to experience very different barriers outside of their shared experiences of accessing standard format materials. However, in terms of their academic studies, both impairment groups are likely to find that their print disability significantly affects their studies, and combining them in this way allowed a very focused exploration of their experiences. Since the production and/or selection of materials is largely within a university's control, it also allowed this study to explore the way in which the four institutions met their obligations to make reasonable adjustments. It is clear, therefore, that the category of 'print disabled students' was both useful and essential to this study of disability discrimination in higher education.

7.7 What can universities do to best meet the needs of print disabled students?

The answers to this question have been implied throughout this thesis, but this section makes nine explicit suggestions as to how institutions can improve the experiences of print disabled students.

The following four suggestions relate to *all* disabled students:

- Reflect the social model understanding of disability in all reasonable adjustments made for disabled students, including the provision of DSA and other funding

- Ensure all staff have a level of knowledge and understanding about disability that reflects their responsibility to make reasonable adjustments
- Treat all disabled students as individuals and ensure that the adjustments made for them are 'needs led'
- Aim to make adjustments that are anticipatory rather than responsive, including considering issues relating to inclusivity when courses are designed, rather than trying to make adjustments to inaccessible courses later

The following five suggestions relate specifically to print disabled students:

- Store copies of all university produced materials in an electronic format suitable for transcription (recognizing that the appropriate format for this may depend on the content of the materials)
- Make electronic versions of course materials available to all students in advance, ideally using an accessible VLE
- Provide prioritized reading lists sufficiently in advance to allow for both transcription and a suitable length of reading time
- Ensure the appropriate staff know how to approach publishers for electronic copies of their materials, and understand the issues that can arise with some formats
- Ensure staff involved in transcription are aware of the difficulties presented by some original formats and content types and how best to overcome them

7.8 Reflection: was this what I expected to find?

In many ways I was not surprised by my findings as I have firsthand experience of the barriers faced by print disabled students. Whilst I have seen many improvements during my 11 years as a student with a visual impairment I know that even in 2011 my peers and I still face significant challenges in order to overcome the barriers we face. It was pleasing, however, to hear of the number of areas in which adjustments are now being made more or less successfully, and to learn of the good practice that is going on in the four universities I studied.

Despite my own experiences of requiring some very difficult adjustments, such as an office to myself when office space is at such a premium that even professors are rarely granted this, I admit I was unprepared for how difficult some barriers are to overcome. This is particularly true in relation to the difficulties of accessing mathematical notation. As my visual difficulties were only very mild when I last took a mathematical course (my maths GCSE in 1997) I decided to 'audit' a Foundation maths degree to experience the course as a print disabled student. Despite the academics involved knowing why I was there, and perhaps making an even greater effort to make adjustments, the strain of organising the conversion of materials, learning to understand and follow mathematical notation when spoken aloud and finding non-visual ways of expressing myself mathematically was too much and I left the class after only five weeks. During this time I kept a blog, which was surprisingly popular, and was asked to write an article on this for the Higher Education Academy Maths, Stats and OR Network (Rowlett, 2008). This, along with other work I conducted into maths and accessibility, highlighted to me the importance of disseminating good practice, sharing ideas and warning others of traps to avoid.

As a student I was frequently told that the materials I had asked to be transcribed would not be ready in time because they were proving difficult to scan and the alternative formats service had given up on requesting electronic copies from publishers due to lack of success. In common with many of my student participants I was frustrated that publishers could be so 'uncooperative' and withhold this from me. I now understand that suitable electronic copies often do not exist, and where there do the trick is to ask the right person for them. I still agree with several of my respondents that publishers should be required to make the anticipatory adjustment to produce a suitable electronic copy of each publication they produce and place it in a central repository for use by print disabled people, but I also understand why this is unlikely to happen in the near future.

I had expected students to be very critical of the adjustments that were made for them, and to see their interviews as a chance to vent their frustrations. Although the latter was true, most students seemed to appreciate the difficulties and were sparing with their criticism. Students were disappointed with staff who agreed to make adjustments and then failed to do so, and were frustrated when others seemed to adopt the medical model of disability and expected disabled students themselves to adjust rather than accepting their legal responsibility to make adjustments.

Although the staff I encountered during my own studies were always very open about the difficulties they faced, in a more formal interview situation I had expected them to be more defensive and argue that even if the adjustments they made were not fully effective they were still legally 'reasonable'. Instead many pointed to areas where they themselves could make improvements as well as suggesting ways in which other staff could assist them in this. Given that academic culture is generally a fairly open one of learning and exploration this should perhaps have been anticipated.

7.9 Further research

The time and resources available to one PhD researcher clearly mean that this research was limited in scope. It was only possible to carry out research in four universities, and it was not possible to conduct a longitudinal study that explored changes over time. Whilst this small snapshot has provided an interesting insight into the experiences of print disabled students and the staff who support them and this has enabled conclusions to be drawn about the impact that SENDA 2001 has had on disabled students, there is clearly scope for further research.

My research could be used as a pilot for a larger scale study involving a representative sample of UK universities. It would be interesting to repeat this study in five or even 10 years time to see what further progress has been made towards a more inclusive university culture. It would also be useful to conduct research into some of the questions that my research was not able to explore. For example: are students with dyslexia viewed as 'less disabled' or less 'worthy' of adjustments than students with visual impairments even if their level of print disability is comparable; how much extra time and effort do disabled students need to expend to achieve the same results as non-disabled students and what can be done to reduce this; and, what can be done to speed up the cultural change needed to improve the experiences of disabled students.

7.10 Final conclusions

Definite improvements have been made now that SENDA 2001 has been fully implemented. When Riddell, Tinklin and Wilson carried out their research between April 2001 and September 2003, they found that most universities now had a "designated disability officer and a senior manager with responsibility for disability issues" (Riddell, Tinklin and Wilson, 2004, p.6). By the time my research began three years on provision had greatly expanded. The four universities studied each had a disability service consisting of at least four full-time staff, an alternative formats service, a pool of disability support workers and an assessment centre. Three out of the four had departmental disability officers (DDOs), and generally speaking all staff seemed more aware of their responsibilities than earlier studies report. There have also been clear attempts to mainstream disability provision and ensure that challenging discrimination and promoting equality are no longer solely the responsibility of the disability service. Naturally DDOs seem to have played a key role in this, but several reported that they still had difficulty getting busy academics to accept their responsibilities.

My research suggests that many universities are still supporting disabled students through a mixture of anticipatory general adjustments and individual responsive ones, but this is clearly necessary if the intention is to adequately meet the needs of individual students. Given the slow progress so far, and the clear difficulties involved in overcoming some barriers and implementing some adjustments, it is questionable whether or not the playing field can in fact be levelled for print disabled students whilst universities remain so highly dependent on the written word, and while this continues to be produced, on the whole, in inflexible and inaccessible standard-format print.

None of these comments are intended to detract from the hard work many staff are doing or the immense importance of SENDA 2001. Whilst it may be argued, that progress is slower than might be hoped and we may never reach the ultimate goal of ending disability discrimination and promoting disability equality, that does not mean we should not try. There is perhaps a danger that, as disability becomes one of a number of protected characteristics within the Equality Act 2010, the unique ways in which disablism differs from sexism or racism, for example, may be forgotten.

Whilst attitudinal change is central to the achievement of equality no matter what characteristic is being discussed, it is impossible to overcome disability discrimination and inequality simply by ignoring a person's impairment as is possible with the other characteristics. Disabled people require not only to be told that they have the right not to be discriminated against and to be treated as equally 'worthy' as anyone else, but they need other members of society, including those with other protected characteristics, to recognise their responsibility to make practical adjustments to allow this to happen. Therefore SENDA 2001 has clearly had a positive impact and has bought about many significant improvements, but until all members of society recognise their responsibility to enforce it through their everyday actions it will not wholly achieve its potential to improve the lives of disabled students.

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Appendices

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Appendix A: Pen portraits of the students in this study

David was a maths-based undergraduate student at University A and he was born with low vision but became blind as a child and now only had light perception. He read Braille, often using a refreshable Braille display that attached to his computer. He used the screenreader Windows-Eyes when he used the Windows operating system and Speak Up when he used Ubuntu.

Jenny was a social science-based undergraduate student at University A and described herself as having '10% of normal vision' and since she could read large print and use magnifiers she has been classified for the purposes of this research as having low vision. She read using a combination of large print and a magnifying glass. She preferred her large print to be produced from books and journals by photocopying them so that it kept the original formatting. For other material she used size 20 font and a magnifying glass. She used JAWS to access her computer. She was not entitled to a DSA as she was an International student.

Jim was a psychology-based postgraduate student (previously a joint psychology- and maths-based undergraduate student) at University A and he was became totally blind as a toddler. He read Braille, although he generally preferred text electronically rather than embossed in Braille, and he accessed this using JAWS. He was an International student so was not entitled to a DSA. He bought his equipment himself, including ABBYY FineReader OCR software to scan and read documents.

Judith was a psychology-based postgraduate student at University A and she w2as diagnosed with dyslexia two years ago. She could just about read standard size printed text but she found it difficult to read this on a computer screen. She was not entitled to a DSA as she was an International student.

Graham was a computing-based postgraduate student at University B and he was born with red-green colour blindness. Although he could generally read standard sized text if it was written or printed in black or blue, he struggled with other colours. He was not entitled to a DSA as his colour blindness was not defined as a disability under the DDA.

Simon was a computing-based undergraduate student at University B and he has been blind since birth. He read Braille as well as using JAWS to access his laptop computer. His DSA also paid for a Dictaphone, a printer, and a Braille embosser.

Scott was a computing-based postgraduate student at University B and he was blind. He had been born blind but an operation restored some of his sight and left him with low vision but he went blind as an adult and now has only slight light perception. He preferred electronic text which he accessed using Windows-Eyes. He used to read Braille but found that not only was he very slow at this but that more recently the sensation in his fingers had become dulled and he could no longer make it out. He also used a scanner and OmniPage OCR software to read documents. His DSA also paid for his laptop and Window-Eyes.

Jake was a social science-based undergraduate at University B at he had low vision. During the interview he did not say if he had been born with low vision or if he acquired it later, but he did talk about having had low vision at school. He preferred white paper and black ink with a minimum font size of 12 point, and disliked Verdana font. His DSA paid for a portable word-processor that allowed him to type notes print them later.

Paul was a psychology-based postgraduate student at University C and he became blind when he was a child. He used JAWS to listen to electronic documents on his laptop. He did not read Braille at all. He had a scanner to read documents and his DSA also paid for his laptop and JAWS.

Carly was a science-based undergraduate student at University C and she was diagnosed with dyslexia when she was at college. She preferred to read from pastel paper or use coloured overlays. Her computer was set up with a pink background. Her DSA paid for books, coloured paper, ink cartridges, coloured overlays and a computer.

Richard was a computing-based undergraduate at University D, but his course contained a lot of maths. He was blind but did not say in the interview whether he had any light perception or not. The question of how long he had been blind was not discussed either. He read eight-dot Braille; mainly using a refreshable Braille display attached to his computer, which he also accessed using JAWS.

May was a social sciences-based undergraduate student at University D and she was diagnosed with dyslexia during her final year of her undergraduate degree. She found that bright coloured backgrounds were easier to read. She did not have a DSA because her dyslexia was diagnosed too late on in her course to apply for it.

Emily was a psychology-based undergraduate student at University D and she was diagnosed with dyslexia at university. She found that dull yellow backgrounds helped her. She also found it very difficult to read from a computer screen. She had applied for DSA and was waiting for a needs assessment.

Steve was a science-based undergraduate student at University D and he had been born with low vision. He could read large print at 16 point, but he preferred to access his documents electronically so he could make them whatever size he wanted. He also read some material using a dome shaped magnifying glass. His DSA paid for a printer, scanner and a book allowance.

Caroline was a practical-based undergraduate student at another university and she was born blind. She read Braille and accessed her computer using JAWS. Her DSA also paid for a Braillenote notetaking unit.

Matthew was a psychology-based undergraduate student at another university and he had dyslexia but also had visual problems although was not registered as sight impaired. He had been born with visual problems and was diagnosed with dyslexia during his first year at university. He preferred his materials in audio format but could read standard sized print if it was on an off-white background, preferably yellow. On his laptop he used a yellow background and a clear font. His DSA also paid for his travel, ink cartridges, TextHelp Read and Write and a scanner.

Luke was a foreign language-based undergraduate student at another University and he went blind during his birth because he was deprived of oxygen. He read Braille in English, French, German and Spanish, as well as musical notation. He liked electronic materials on his computer and used an Apple computer which had the built-in screenreader, VoiceOver. His DSA also paid for a PDA with built-in Braille display and a printer and scanner.

Kathryn was a psychology-based postgraduate student at another university and she was deafblind. She was born with low vision which started to deteriorate at the age of nine, and she has only had light perception for the past 17 years. She became deaf 4 years ago. She read Braille and because she was also deaf she did not use a screenreader but relied on a refreshable Braille display attached to her computer. She bought the computer, Braille display and a scanner with Kurzweil herself before she started the course.

Mark was a social science-based undergraduate student at another university and he was born with low vision. He could read standard print for a short time but he got eye strain easily so preferred Arial size 16 or above. He changed the screen resolution of his laptop to make the contents larger and also used the screen magnification programme ZoomText on university computers. When using the Internet he changed the font size to 'larger' or 'largest'. He also had a magnifying camera that he could use with his laptop to zoom in on materials to read. His DSA paid for his laptop and printer and printing expenses.

Helen was a social science-based postgraduate at another university and she developed low vision in about 1999 as the result of a car accident. She preferred audio or electronic materials and used Supernova to magnify the items on her computer screen. She was not entitled to a DSA but a special fund for International students at her University bought her a scanner, voice recorder, Supernova, voice recognition software, and also paid for travel, Internet and phone costs.

Mandy was a social sciences-based undergraduate student at another university and she was born blind. She read Braille and used JAWS to access her computer. She also used a scanner with the program Kurzweil to scan and read documents to her. Her DSA paid for a computer, a printer, a PAC Mate notetaking unit, JAWS, a scanner and Kurzweil, ink and travel costs. She also had five sessions of training arranged through her DSA.

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Appendix B: Examples of question guides for interviews

i) Example of a basic question guide used with visually impaired students

- What do you understand the term 'disability' to mean?
- What does 'reasonable adjustment' mean to you?
- What course are you doing?
- Can you tell me a bit about your visual history?
- What is your preferred format?
- Do you get a Disabled students' allowance? If so, what equipment/support has been provided?
- What adjustments have been made in relation to the following:
    - Lectures/seminars, including notes, overheads, handouts etc.
    - Accessing textbooks and using the library
    - Taking exams
    - Coursework
    - Extra tuition?
- How happy are you with the adjustments that have been made for you?
- Improvements needed?
- Is there anything else you would like to add?

ii) Example of a basic question guide used with students with dyslexia

- What do you understand the term 'disability' to mean?
- What does 'reasonable adjustment' mean to you?
- What course are you doing?
- Can you tell me a bit about your dyslexia?
- What is your preferred format?
- Do you get a Disabled students' allowance? If so, what equipment/support has been provided?
- What adjustments have been made in relation to the following:
    - Lectures/seminars, including notes, overheads, handouts etc.
    - Accessing textbooks and using the library
    - Taking exams

  - Coursework
  - Extra tuition?
  - How happy are you with the adjustments that have been made for you?
  - Improvements?
- Is there anything else you would like to add?

iii) Example of a basic question guide used with staff

- What does your job involve?
- How long have you been doing your current job?
- Did you do similar work before?
- How would you define 'disability'?
- In your own words, how would you define the term 'reasonable adjustments'?
- How do you decide what is reasonable?
- What sort of problems would you expect a student with a print impairment to face?
- What have you done to support students with print impairments?
- How satisfied are you with the adjustments you've made to support students with a print impairments?
- What has been the biggest problem / What do you anticipate as being the biggest problem in terms of supporting students with print impairments?
- How could this be resolved?
- Are there any additional resources that would make the task easier?
- Is there anything you would like to add?

Appendix C: Example of questions used for email and instant messaging interviews

EMAIL INTERVIEW SCHEDULE

There are 20 questions below, please give as much detail as you feel you can, but feel free to write "Not Applicable" (NA) if appropriate or to withhold answers if you wish.

You may find it helpful to read through the whole questionnaire before you begin writing your answers so that you know what other questions are coming and don't unnecessarily duplicate your answers.

If there are any questions you don't understand, just email me and I'll try to make myself clearer.

Also, I've produced this document in Verdana 20 point font as that is what I read most easily, but feel free to reformat it as you wish – I can always change it back later!

1) What is the name and level of your course (e.g. Sociology BA)?

2) Are you an undergraduate, taught postgraduate, postgraduate, or recent graduate? Please choose one.

3) What year are you in and how many years is your course in total (e.g. year 2 of 3)?

4) Are you studying full-time or part-time?

5) Why do you have difficulty reading standard print? It is useful to know the type of disability, (e.g. blind, partially sighted, dyslexic, etc) how long you have been affected or when you were diagnosed (e.g. "since birth", "diagnosed in 1992", etc,) and what difficulties you have, (e.g. "cannot see page at all", "can read but with difficulty", "words blurry", "text jumps about", "gives you eye strain", etc.).

6) What is your preferred format? (e.g. standard sized print, large print – please specify size, Braille, audio, etc)

7) If you read standard sized print or large print, do you require any other adjustments? (e.g. font style, line spacing, paragraph layout, paper colour, etc.)

8) Do you make any adjustments to computer settings to make the screen contents easier to see (e.g. change font size or style, change background colour, etc)?

9) Do you have a Disabled Students' Allowance (DSA)? (e.g. Yes, No, "awaiting decision", etc)

10) If not, what alternative sources of funding for disability related support and equipment do you get? (e.g. University, Access to Learning Fund, etc)

11) What do you receive in terms of:

i) Non-medical helper support (e.g. notetakers, personal assistants, library browsers, transcriptions, etc)

ii) Equipment (e.g. computer, laptop, printer, Braille display, etc.)

iii) Software (e.g. screenreader, screen magnifier, text reader, etc)

iv) Training to use equipment or software

v) Daily expenses (e.g. travel costs, ink, paper, etc)

12) What 'reasonable' adjustments have been made for you in relation to the following:

a) Lectures/seminars, (e.g. notes, overheads, handouts, etc in alternative formats.)

b) Accessing textbooks, journals etc and using the library (e.g. reading lists in advance, materials in alternative formats, help finding books, etc)

c) Taking exams (e.g. extra time, exam papers in alternative formats, use of computer, etc.)

d) Assignments (e.g. extensions, alternative assignments, etc)

e) Have you had any extra tuition? (e.g. to help you understand a topic, to add to information from lectures, to expand on lab sessions, etc?)

f) Does your university provide computers you can use and if so what adjustments are made to them, e.g. large monitor, settings altered, screenreading software, etc)

g) Does your university provide other equipment on campus for your use, (e.g. CCTV viewers, computers with scanner and software such as Kurzweil for reading documents, etc.)?

h) Practical sessions (e.g. giving presentations, lab work, conducting interviews, placements, etc.)

i) Getting around campus (e.g. taxis, personal assistants, mobility training, etc)

13) How do you handle the following types of materials that might be used in textbooks or during lectures? (E.g. "produced as a tactile version", "described in words") Don't worry if you haven't used all of the types listed, just write "NA" for any you haven't used.

i) graphs

ii) diagrams

iii) pictures

iv) tables

v) mathematical formulae

vi) videos

vii) foreign languages

14) Are there any other adjustments you receive that have not been mentioned above? If so, please give details.

15) Overall, how happy are you with the adjustments that have been made for you?

16) Can you give a few examples of adjustments that have worked well?

17) Can you give a few examples of adjustments that haven't worked so well?

18) Do you feel there are any areas in which adjustments are not being made which you think need making? If so, please give examples.

19) Is there anything else you would like to add that hasn't been covered elsewhere?

20) Finally, how would you like to be described in my final thesis (e.g. name, disability, year of study, level of study, subject)? For example, I would describe myself as "Emma, partially sighted, second year PhD student in Sociology", someone else might put "Mike, visually impaired, 1st Year undergraduate student in Physics". You do not have to give your real name, feel free to use a pseudonym. Also, you do not have to give all the details, just the ones you feel comfortable with.

If I use quotes from interviews in my thesis, these will have greater validity if I can give a name and an indication of disability. This could also help readers identify the context in which a quote was made.

If you have any questions about what you should put just email me and I'll do my best to help.

Thank you once again for agreeing to take part in my research, it is very much appreciated. Please save your answers and email your completed questionnaire to me as an attachment.

Appendix D: Factsheet for participants

FACTSHEET FOR PARTICIPANTS

Overview of Research

The working title of my PhD research is:

"Accessing Materials: making 'reasonable adjustments' for students with print impairments in Higher Education".

I will be looking at access to a range of materials, including written, spoken, multimedia, and audio-visual resources. I am defining 'print impairment' to include those with visual impairments, dyslexia and visual perceptual difficulties, and any student who finds it difficult to read 'standard' print is welcome to take part. I will be interviewing students and staff from two East Midlands Universities about their experiences of receiving or providing adjustments, as well as conducting an extensive review of literature relevant to my topic.

If you want more information about my research, please visit: http://www.accessingmaterials.org.uk or email me at emmajane9@gmail.com.

Notes for participants

Thank you for agreeing to take part in my research. All information collected from you will remain confidential, and I will ask you to chose a pseudonym to use during the interview so that your real name is not revealed in any way. With your permission, interviews will be audio recorded. The digital recording produced will be transcribed to provide a written account, and you will be provided with a copy of this transcript for your approval. Once you have approved the anonymised transcript it will be included as an appendix to my final thesis and may be quoted from in my thesis as well as other papers relating to my research. The recording will be destroyed within 6 years of completion of my research as required by the Data Protection Act 1998, and until that time it will be stored securely and remain confidential - and only the transcriber and myself will have access to it.

Appendix E: Consent form

I have read/have had read to me* and understood the "Factsheet for Participants" and agree to take part in this research. I agree/do not agree* to my interview being audio recorded. (*Delete as appropriate).

Signed ....

Dated ....

Print Name ....

I would like the transcript sent to me in the following way (please choose one):

☐ Email – please give email address:

....

☐ Post – please give postal address:

....

....

....

Please choose the format you prefer:

☐ Standard print (Verdana, size 12)

☐ Large print (please specify size and/or font)

....

☐ Braille

☐ Audio Cassette

☐ On CD

☐ Other (please specify)

....

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Appendix F: Non-disclosure agreement for non-medical helpers dealing with confidential information

NON-DISCLOSURE AGREEMENT

I, ……………………………………………………………………, agree not to disclose the contents of the recordings provided for me for transcription, or to reveal the identities of those recorded in any other way. I will not allow anyone else access to the recordings, and will return all recordings, without making copies, when transcription is completed.

Signed………………………………………………………………

Dated………………………………………………………………

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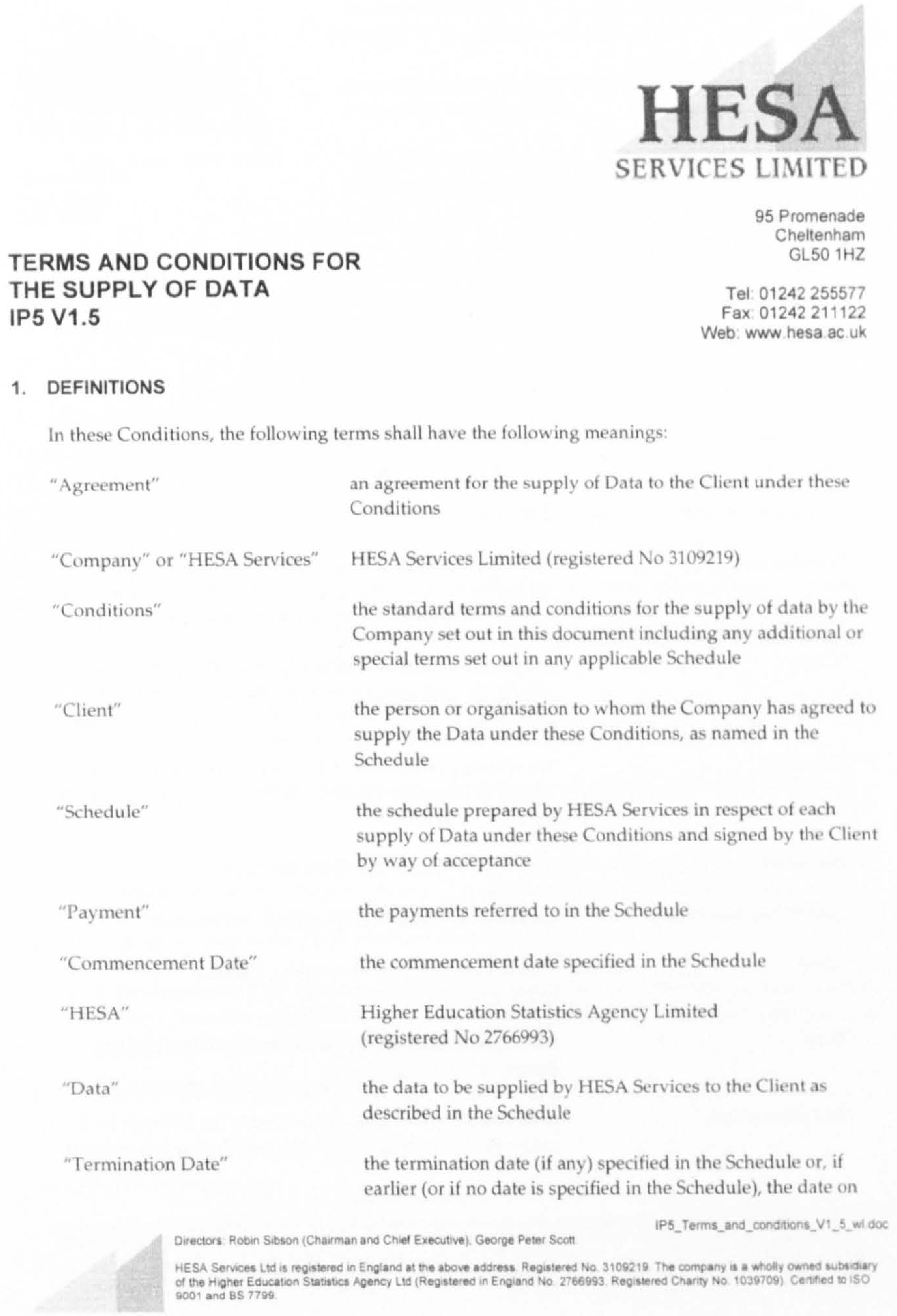
Appendix G: HESA data Terms and Conditions



HESA
SERVICES LIMITED

95 Promenade
Cheltenham
GL50 1HZ

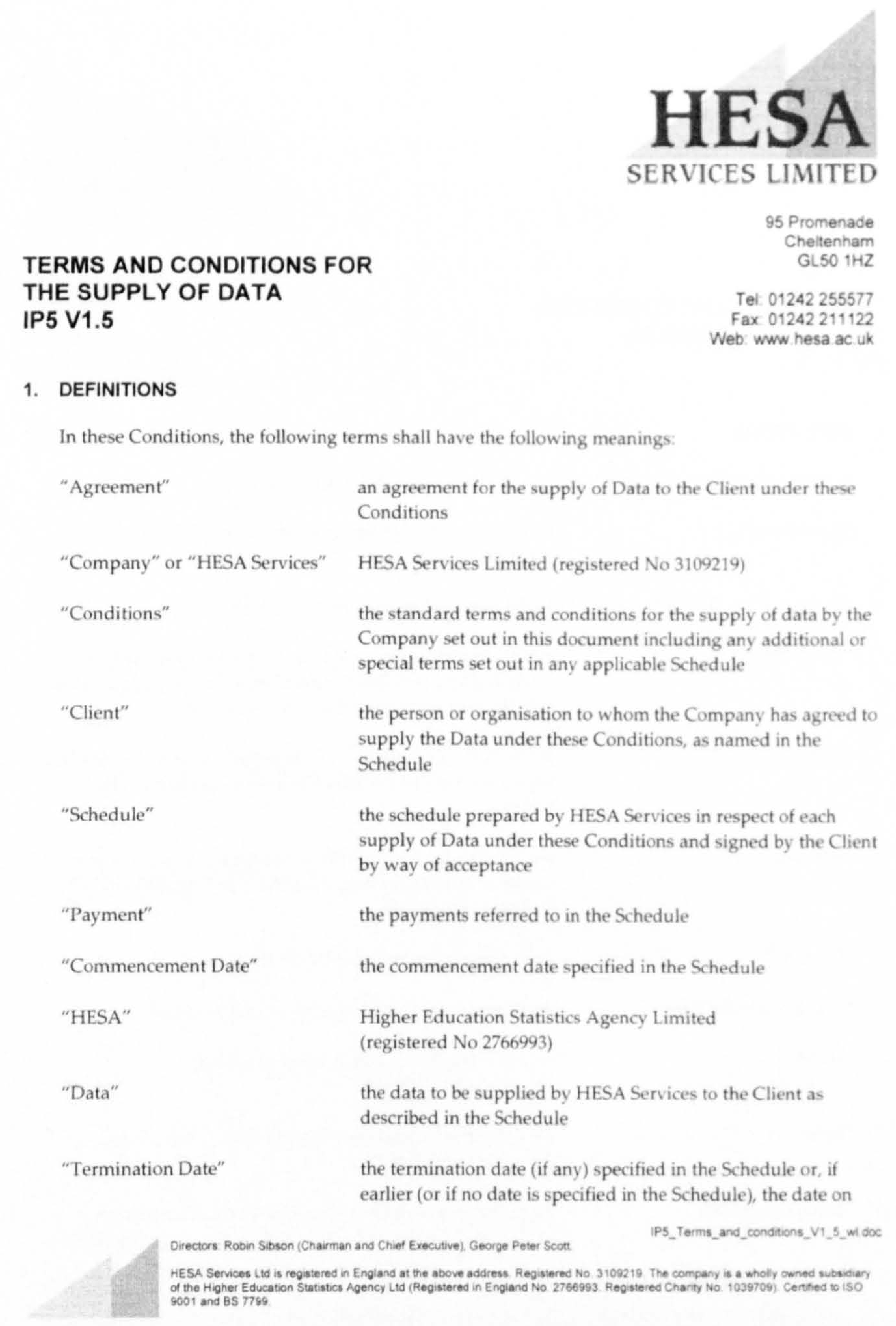
Tel: 01242 255577
Fax: 01242 211122
Web: www.hesa.ac.uk

TERMS AND CONDITIONS FOR THE SUPPLY OF DATA
IP5 V1.5

1. DEFINITIONS

In these Conditions, the following terms shall have the following meanings:

"Agreement"	an agreement for the supply of Data to the Client under these Conditions
"Company" or "HESA Services"	HESA Services Limited (registered No 3109219)
"Conditions"	the standard terms and conditions for the supply of data by the Company set out in this document including any additional or special terms set out in any applicable Schedule
"Client"	the person or organisation to whom the Company has agreed to supply the Data under these Conditions, as named in the Schedule
"Schedule"	the schedule prepared by HESA Services in respect of each supply of Data under these Conditions and signed by the Client by way of acceptance
"Payment"	the payments referred to in the Schedule
"Commencement Date"	the commencement date specified in the Schedule
"HESA"	Higher Education Statistics Agency Limited (registered No 2766993)
"Data"	the data to be supplied by HESA Services to the Client as described in the Schedule
"Termination Date"	the termination date (if any) specified in the Schedule or, if earlier (or if no date is specified in the Schedule), the date on



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Directors: Robin Sibson (Chairman and Chief Executive), George Peter Scott

HESA Services Ltd is registered in England at the above address. Registered No. 3109219. The company is a wholly owned subsidiary of the Higher Education Statistics Agency Ltd (Registered in England No. 2766993. Registered Charity No. 1039709). Certified to ISO 9001 and BS 7799.

	which the licence to the Client referred to in Clause 3 is terminated in accordance with Clause 10
"Permitted Purposes"	the purposes for which the Client is authorised to use the Data as specified in the Schedule
"Quality Assurance Process"	the quality assurance process used by HESA Services from time to time, details of which will be supplied to the Client on request

2. DURATION

2.1 This Agreement will commence with effect from the Commencement Date and end on the Termination Date, subject to earlier termination in accordance with Clause 10.

3. LICENCE

3.1 In consideration of the Client making the Payment to HESA Services in accordance with Clause 4 and subject to these Conditions HESA Services grants to the Client a non-exclusive, non-transferable licence to receive and use the Data for the Permitted Purposes for the duration of this Agreement.

4. PAYMENT

4.1 The Client undertakes to pay to HESA Services the Payment (plus VAT) as a licence fee for the right to receive and use the Data in accordance with this Agreement. Where more than one payment is specified in the Schedule, such payments (plus VAT) must be made by the Client on the basis and frequency set out in the Schedule.

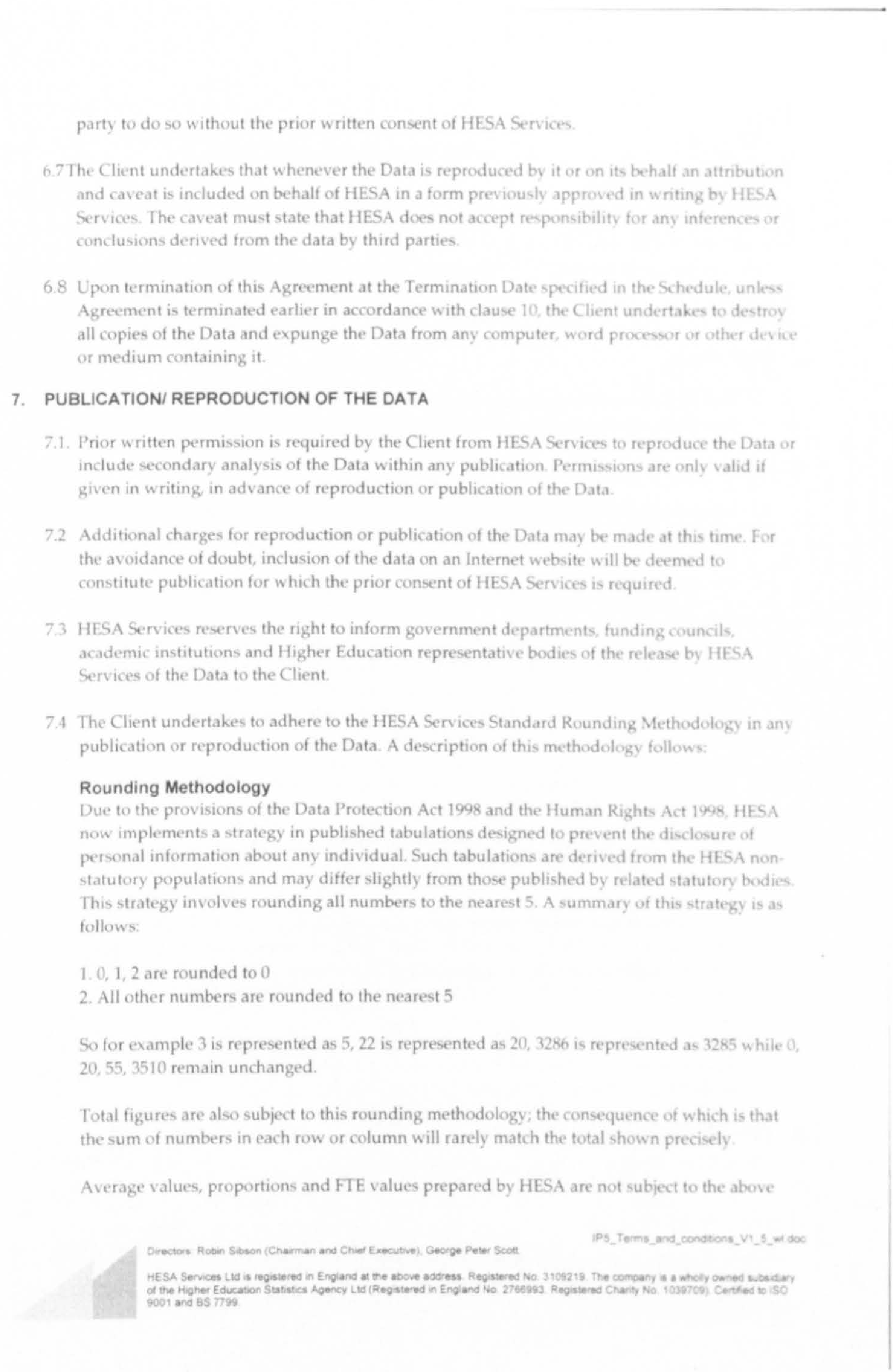
4.2 The Payment (or the first payment if more than one is specified in the Schedule) shall be paid by the Client within 30 days of the invoice date.

4.3 All payments to be made under this Agreement shall be exclusive of VAT unless otherwise expressly stated.

4.4 HESA Services may provide to the Client any additional data requested by the Client for such additional fee as HESA Services and the Client may agree in advance of the provision of the relevant additional data provided always that HESA Services are under no obligation to provide any data to the Client which is not comprised in the Data.

4.5 HESA Services will not make refunds if for any reason all or any of the Data is not used by the Client or is not in accordance with the Client's expectations or if the Client fails or decides not to use the Data for any of the Permitted Purposes.

5. OBLIGATIONS OF HESA SERVICES



party to do so without the prior written consent of HESA Services.

6.7 The Client undertakes that whenever the Data is reproduced by it or on its behalf an attribution and caveat is included on behalf of HESA in a form previously approved in writing by HESA Services. The caveat must state that HESA does not accept responsibility for any inferences or conclusions derived from the data by third parties.

6.8 Upon termination of this Agreement at the Termination Date specified in the Schedule, unless Agreement is terminated earlier in accordance with clause 10, the Client undertakes to destroy all copies of the Data and expunge the Data from any computer, word processor or other device or medium containing it.

7. PUBLICATION/ REPRODUCTION OF THE DATA

7.1. Prior written permission is required by the Client from HESA Services to reproduce the Data or include secondary analysis of the Data within any publication. Permissions are only valid if given in writing, in advance of reproduction or publication of the Data.

7.2 Additional charges for reproduction or publication of the Data may be made at this time. For the avoidance of doubt, inclusion of the data on an Internet website will be deemed to constitute publication for which the prior consent of HESA Services is required.

7.3 HESA Services reserves the right to inform government departments, funding councils, academic institutions and Higher Education representative bodies of the release by HESA Services of the Data to the Client.

7.4 The Client undertakes to adhere to the HESA Services Standard Rounding Methodology in any publication or reproduction of the Data. A description of this methodology follows:

Rounding Methodology

Due to the provisions of the Data Protection Act 1998 and the Human Rights Act 1998, HESA now implements a strategy in published tabulations designed to prevent the disclosure of personal information about any individual. Such tabulations are derived from the HESA non-statutory populations and may differ slightly from those published by related statutory bodies. This strategy involves rounding all numbers to the nearest 5. A summary of this strategy is as follows:

1. 0, 1, 2 are rounded to 0
2. All other numbers are rounded to the nearest 5

So for example 3 is represented as 5, 22 is represented as 20, 3286 is represented as 3285 while 0, 20, 55, 3510 remain unchanged.

Total figures are also subject to this rounding methodology; the consequence of which is that the sum of numbers in each row or column will rarely match the total shown precisely.

Average values, proportions and FTE values prepared by HESA are not subject to the above strategy, and can be calculated on precise raw numbers. However, percentages calculated on populations which contain 52 or less individuals should be suppressed and represented as '..' as should averages based on populations of 7 or less.

Data on financial affairs of higher education institutions does not fall within the definition of 'personal data' under the Data Protection Act 1998, and is therefore exempt from the above provisions.

8. OWNERSHIP, WARRANTIES AND INDEMNITIES

8.1 All intellectual property rights in the Data and in any database containing the Data compiled by HESA services or HESA shall remain with HESA Services and/or HESA. The Client acknowledges that the Data is derived from databases compiled and owned by HESA and that HESA retains all rights in the Data and such databases under the Copyright Rights in Databases Regulations 1997.

8.2 HESA Services warrants and undertakes that:

(a) HESA Services has the capacity and authority to licence the use of the Data in accordance with Clause 3; and

(b) HESA Services has carried out the Quality Assurance Process on the Data.

8.3 Subject to clauses 8.2, no warranty is given by HESA Services as to the quality or accuracy of any data supplied by HESA Services to the Client.

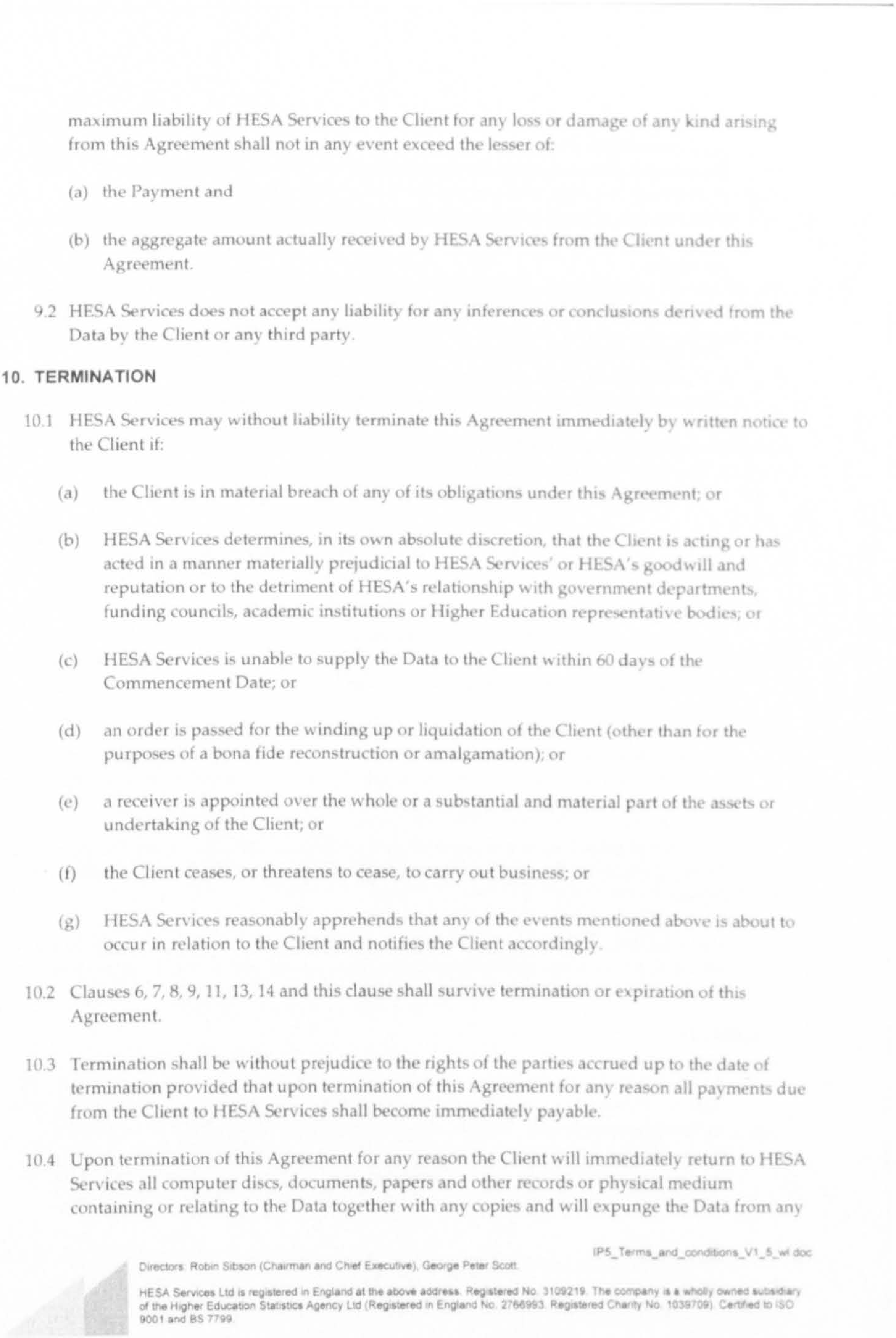
8.4 The Client warrants and undertakes to HESA Services that at all material times it will comply with the provisions of the Data Protection Act 1998 so far as such provisions apply to it in respect of this Agreement and more particularly that it will not make or permit or pursue any analyses which allow the identification of individuals.

8.5 The Client shall indemnify and keep indemnified HESA Services against all damages, costs and expenses suffered by HESA Services or HESA arising from any breach of this Agreement by the Client.

8.6 HESA Services, to the extent that it or HESA is the author of any materials comprising the Data, hereby asserts its and/or HESA's right to be identified as the author of such materials in accordance with s.78(2) of the Copyright, Designs and Patents Act 1988.

9. LIABILITY

9.1 HESA Services has no obligations to the Client, whether in contract, tort, breach of statutory duty or otherwise, beyond its obligations expressly set out in this Agreement. HESA Services shall not have any liability (however caused) for any loss of profit, business, contracts, revenues, increased costs or expenses or any indirect or consequential loss arising under this Agreement or otherwise in respect of any data supplied by HESA Services to the Client. The



maximum liability of HESA Services to the Client for any loss or damage of any kind arising from this Agreement shall not in any event exceed the lesser of:

(a) the Payment and

(b) the aggregate amount actually received by HESA Services from the Client under this Agreement.

9.2 HESA Services does not accept any liability for any inferences or conclusions derived from the Data by the Client or any third party.

10. TERMINATION

10.1 HESA Services may without liability terminate this Agreement immediately by written notice to the Client if:

(a) the Client is in material breach of any of its obligations under this Agreement; or

(b) HESA Services determines, in its own absolute discretion, that the Client is acting or has acted in a manner materially prejudicial to HESA Services' or HESA's goodwill and reputation or to the detriment of HESA's relationship with government departments, funding councils, academic institutions or Higher Education representative bodies; or

(c) HESA Services is unable to supply the Data to the Client within 60 days of the Commencement Date; or

(d) an order is passed for the winding up or liquidation of the Client (other than for the purposes of a bona fide reconstruction or amalgamation); or

(e) a receiver is appointed over the whole or a substantial and material part of the assets or undertaking of the Client; or

(f) the Client ceases, or threatens to cease, to carry out business; or

(g) HESA Services reasonably apprehends that any of the events mentioned above is about to occur in relation to the Client and notifies the Client accordingly.

10.2 Clauses 6, 7, 8, 9, 11, 13, 14 and this clause shall survive termination or expiration of this Agreement.

10.3 Termination shall be without prejudice to the rights of the parties accrued up to the date of termination provided that upon termination of this Agreement for any reason all payments due from the Client to HESA Services shall become immediately payable.

10.4 Upon termination of this Agreement for any reason the Client will immediately return to HESA Services all computer discs, documents, papers and other records or physical medium containing or relating to the Data together with any copies and will expunge the Data from any maximum liability of HESA Services to the Client for any loss or damage of any kind arising from this Agreement shall not in any event exceed the lesser of:

(a) the Payment and

(b) the aggregate amount actually received by HESA Services from the Client under this Agreement.

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10.3 Termination shall be without prejudice to the rights of the parties accrued up to the date of termination provided that upon termination of this Agreement for any reason all payments due from the Client to HESA Services shall become immediately payable.

10.4 Upon termination of this Agreement for any reason the Client will immediately return to HESA Services all computer discs, documents, papers and other records or physical medium containing or relating to the Data together with any copies and will expunge the Data from any computer, word processor or other device or medium containing it and will confirm compliance with the above in writing to HESA Services within 10 working days of the date of termination.

11. NOTICES

11.1 Any notice to be given pursuant to this Agreement;

(a) shall be in writing; and

(b) shall be delivered by hand or sent by first class post or facsimile to the party due to receive such notice at its address or facsimile number (as appropriate) set out below or such other address or facsimile number as any party may notify to the other from time to time:

HESA Services: **HESA Services Limited**
95 Promenade
Cheltenham
GL50 1HZ
facsimile: 01242 211122

The Client: at its address stated in the Schedule

11.2 In the absence of evidence of earlier receipt any such notice shall be deemed to have been given or received:

(a) if delivered by hand, when delivered; or

(b) if sent by facsimile, on receipt by the sending party of confirmation of successful transmission to the recipient party's facsimile receiving equipment; or

(c) on the second business day following the day of sending if sent by post.

11.3 Where a notice is sent by facsimile but is not legible upon receipt, the recipient party will promptly so inform the sending party who will as soon as reasonably practicable resend the notice by facsimile.

12. FORCE MAJEURE

HESA Services shall not be deemed to be in breach of this Agreement or otherwise liable to the Client for a failure to perform any obligation to which it is subject under this Agreement to the extent that it is prevented from performing the relevant obligation by any event or circumstance beyond its reasonable control ("an Event of Force Majeure"). Where an Event of Force Majeure occurs or arises, HESA Services shall as soon as may be practical give notice of this event to the Client and the time for performance of the relevant obligation shall be deemed to be extended by a period equal to the duration of the Event of Force Majeure.

13. GENERAL