UNIVERSITY OF SOUTHAMPTON

FACULTY OF HEALTH SCIENCES

An exploration of factors which influence university students' decisions whether or not to be tested for dyslexia

by

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ABSTRACT

FACULTY OF HEALTH SCIENCES

Nursing

Thesis for the degree of Doctor of Philosophy

AN EXPLORATION OF FACTORS WHICH INFLUENCE UNIVERSITY STUDENTS' DECISIONS WHETHER OR NOT TO BE TESTED FOR DYSLEXIA

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The decision to request an assessment for dyslexia whilst at university is often one of the most complex decisions a student has to make. It involves careful examination of the implications; balancing any perceived benefits, against actual or potential disadvantages. Despite this, very little is known about factors which influence students making this decision.

A two-phase exploratory qualitative approach was selected to identify how many university students consider being tested for dyslexia, how they proceed and reasons behind this. Phase 1 consisted of an online survey available to all students registered at one UK University. Data was obtained from 674 students at all stages of their educational journey, across 8 different faculties, including 533 on Undergraduate; 54 on Post-graduate taught and 85 on Post-graduate research programmes. Of these 310 students had considered being assessed and explained why they had chosen not to go ahead. In depth interviews with 6 of these students, and a further 5 who had been assessed then provided a greater understanding of the factors involved.

Results revealed a myriad of reasons, with some considered pivotal. Students had to have reached a tipping point before they were sufficiently motivated to seek an assessment. Reaching this point was largely determined by their academic self- concept and how well they perceived that they were doing. When students did acknowledge that they were struggling, often after prompts by others; whether or not they recognised dyslexia as a possible explanation was influenced by their understanding of the condition. This in turn was heavily influenced by how they saw it manifest in others. All

of the students who had been assessed did so following a prompt by a member of academic staff.

There are clear implications for educational practice arising from this research, which need to be supported by policy change. These focus on the need to enhance understanding of dyslexia in both students and academic staff. Strategies to raise student awareness, alongside more in-depth staff development initiatives are proposed. There is also a need for future research to explore in detail factors influencing specific professional groups and postgraduate students.

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DECLARATION OF AUTHORSHIP

I, Michelle Denise Cowen declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Title of Thesis

An exploration of factors which influence university students' decisions whether or not to be tested for dyslexia.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signed: .....

Date: 15th May 2018

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I would like to begin by thanking all of the students who participated in this research, without you none of it would have been possible. You gave your time generously and shared your stories for which I am truly grateful.

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Special thanks also need to go to my husband Danny, daughter Stephanie and other members of my family. You have kept me going when times have got tough, provided endless cups of coffee, along with emotional and IT support. I wish you could have been here to see it dad, but I know that you would have been proud.

Finally I would like to thank Dr Geraldine Price, my Programme Lead for the MSc in SpLD. You shared your knowledge and got me 'hooked' on dyslexia. Little did I know where that journey would take me.

Clarification and Justification of Terms Used

SpLD

Dyslexia is one of a range of conditions known collectively as SpLD. Within the literature these initials are used to signify two terms interchangeably, Specific Learning Difference and Specific Learning Difficulty. For the purpose of this thesis a decision has been made to use Specific Learning Difference as advocated by the British Dyslexia Association (BDA) publication *Dyslexia Friendly Schools* (Eastap and Gregory 2018). The term 'difficulty' could be seen to have negative connotations, implying that there is something wrong and focussing on the individual's weaknesses. This has traditionally led to a child being identified as having 'special educational needs' and a package of remediation being devised. In contrast the term 'difference' recognises that individuals process information and learn differently, thereby helping promote a more inclusive approach.

Types of SpLD

The umbrella term SpLD includes Dyslexia, Dyspraxia, Dyscalculia, Attention Deficit (Hyperactivity) Disorder and Auditory Processing Disorder. When a student comes forward for assessment it is possible that they may be diagnosed with any of the SpLD, or none at all. The terms SpLD and Dyslexia are therefore used interchangeably within the thesis.

Dyslexic student / adult

Attention should be drawn to the use of the term 'dyslexic student/adult' within the thesis. As a healthcare professional I am used to seeing the person first, rather than their disability, and would prefer to say 'adult with dyslexia'. However, as specialist groups, including the BDA, prefer to use the term dyslexic adult there are times where this format is used.

Diagnosed or Identified?

A final area of potential controversy surrounds the use of the term 'diagnosed' when describing the process by which dyslexia is confirmed. Those who subscribe to the social model of disability (Shakespeare, 2013) prefer the term 'identified' as they suggest that diagnosed reinforces a medical model. Whilst this has some credence I have chosen to use 'diagnosed' as this term implies an unequivocal judgement, whereas identified could be considered more subjective.

Chapter 1: Introduction

In 1999 a UK wide study of dyslexia provision in Higher Education (HE) revealed that 43% of students with dyslexia had only been identified as dyslexic since starting at university, (Singleton 1999). What has not been looked at since, was whether there are other students who have considered being assessed, but who have not gone forward to request it. This study has established that this is indeed the case. Data from 674 students, across all stages of their academic journey, revealed that 310 students at one UK University had contemplated being assessed for dyslexia. At the time of data collection, none had gone forward to be assessed.

There is a wealth of evidence to illustrate that individuals with dyslexia benefit significantly from the provision of specialist support, but all too often access to this support is delayed by a late diagnosis. Within HE students can self-refer to the relevant support service and request a dyslexia assessment[1], although they frequently delay doing so. Previous research highlighted that it was not uncommon for students to wait until their final year of study before seeking help, and often only following repeated academic failure, (Cowen 2005; Nichols et al 2009). As any delay in diagnosis will impact on the student's ability to succeed, it is imperative that previously undiagnosed dyslexic students entering university are identified in a timely manner.

This exploratory qualitative study established a range of intrinsic and extrinsic factors which influenced the student's decisions. In most cases, the decision-making process was extremely complex and subjective. Students frequently analysed the implications; balancing any perceived benefits, against actual or potential disadvantages. Where students did decide to go ahead with an assessment the decision was only made when they reached what for them was a 'tipping point'. Most of the students studied had not reached this point however, and the data clearly showed that this was because they did not perceive a dyslexia assessment as necessary. This was influenced by three key factors.

- How the student perceived their academic success, both on their current programme and from previous experience, was fundamental. If they did not acknowledge that they were struggling, even when they clearly were, they saw no reason to be assessed.

[1] The assessment conducted will search for evidence of any of the Specific Learning Differences (SpLD) not merely dyslexia, although students may not realise this and will ask to be tested for dyslexia.

- Students had a very poor understanding of dyslexia. They therefore did not attribute their own pattern of difficulties to the condition, although in some cases it was clearly a potential cause.
- Students often compared themselves to people who they knew were dyslexic. This led them to reject dyslexia as a possibility if they did not perceive their problems as being as severe, or if they exhibited a different pattern of difficulties.

This thesis will now outline how these findings were reached, and how the insights gained will inform future practice across both my own and other Higher Education Institutions (HEI's). Recommended strategies, arising from the research, will aid students whilst making a decision to be assessed. This will help promote earlier identification and lead to more timely provision of support.

Chapter 1 justifies why this research was necessary. It begins with an overview of dyslexia, revealing the complex nature of the condition, as this is fundamental to the 'challenge' of identification. The importance of early identification, for both the student and those involved in their education is emphasised.

Chapter 2 provides a detailed overview of evidence pertinent to this study. It begins by identifying how decisions were made as to what evidence was important to consider and how this was subsequently located, as this posed specific challenges. A multifaceted approach was used; and the discussion starts with an overview of a range of topics considered to be important as underpinning or background information. This is followed by a critical exploration of the limited number of studies which had more direct relevance to this research; revealing significant gaps in the existing body of knowledge. The chapter concludes by identifying the overall aim for the research and a set of research questions that were addressed through the study.

Chapter 3 provides a description and justification of the research design. The choice of a two-phase approach, to enable the target population to be identified, before the research questions could be fully explored, is articulated and defended.

Chapter 4 reveals key findings, identifying the scale of the issue across one UK university before focussing on the wealth of qualitative date obtained.

Chapter 5 discusses the key findings in the context of existing literature. The chapter culminates with the creation of a conceptual model. This depicts the major factors that influenced the students' decisions identified from the data.

Chapter 6 concludes the thesis, reviewing the contribution that this study has made to the body of knowledge and detailing how this will be disseminated. A wide range of

recommendations are also presented with key actions proposed for both policy makers at university level and for all academic staff.

Throughout the thesis literature related to dyslexic children was utilised when considering the pattern of difficulties, nature of support and the implications of that support not being offered. Historically the majority of dyslexia research has been related to children, and this was in the most part transferrable. Where it was available, literature related to adults within HE was evaluated, although this was often limited.

Before moving forward with the overview of dyslexia it is important to acknowledge my background in the subject, as this had both advantages but also presented a potential conflict of interest. My interest in dyslexia began in 2003, when having recognised that a significant percentage of the healthcare students I was involved in teaching were dyslexic, I commenced an MSc in Specific Learning Differences (Dyslexia). Since I completed this in 2005 I have acted as an advisor on dyslexia within the faculty, in addition to my normal lecturer role. In January 2010 I was also appointed as a Consultant to the Royal College of Nursing and commissioned to create a *Toolkit for Practitioners* and a *Guide for Managers* on dyslexia, dyspraxia and dyscalculia, (Cowen 2010a, 2010b).

Together these two roles have given me a great deal of insight into the needs of students with a range of specific learning differences and have provided an appropriate background to research this area. However, they also introduced a potential for bias both through preconceived ideas I might have as to what factors might be important. Furthermore, the very existence of my role within the faculty had the potential to influence student behaviour. Strategies used to reduce any potential bias or conflict of interest are explored more fully in sections 3.8.1 and 3.8.2 when discussing methodology, although it is prudent to alert the reader from the very beginning.

1.1 Background

In 1896 the British Medical Journal published an account by Dr Pringle-Morgan, detailing the case of 'Percy', a 14 year old boy who struggled to spell words of even just one syllable. It revealed how his school master had suggested that had his instruction had been entirely oral, Percy would have been the "smartest lad in the school", (Pringle-Morgan 1896, cited by Miles and Miles 1999 vi). Since this first description of what was then termed 'word-blindness', our understanding of dyslexia, and how to support individuals with it, has developed dramatically. The recognition by his school master that Percy would have benefitted from a different style of teaching was insightful. Now, just over 100 years later, there is widespread recognition of dyslexia as a 'specific

learning difference' (SpLD), acknowledging that individuals with dyslexia learn differently and require specialised support. There is also now significant evidence to demonstrate that, with the right type of help, individuals with dyslexia can do extremely well academically (Cooke 2002; Pumfrey 2004; Burden, 2005). Literature on 'scaffolded learning' (Vygotsky 1978; Silliman and Wilkinson 1994); use of multisensory teaching methods (Pumfrey and Reason 1991; McLoughlin 2001; Turner 2002; Peer and Reid 2003) and developing metacognitive awareness (Tunmer and Chapman 1996; Reid and Kirk 2001) all demonstrate that if appropriate teaching methods are used, dyslexic learners will flourish.

Although my focus is on adult learners, the importance of providing support from an early age[2] has been recognised for some time. Reid and Kirk (2001) assert that children require support to acquire appropriate literacy skills, in order that they can then cope with the school curriculum. They stress that this type of intensive input will pay dividends, but acknowledge that it is expensive. For an individual to really benefit, support needs to be targeted around their personal profile of strengths/areas of difficulty and is therefore highly specialised. As such it can only be provided by suitably qualified dyslexia practitioners. Within Higher Education (HE) the funding required to provide one to one support will only be available to students who have a formal diagnosis of a SpLD[3], which reinforces the need for recognition.

In stark contrast to the success stories, there are also harrowing personal accounts of individuals who have struggled to obtain either recognition or support. Published studies by Osmond (1993), Edwards (1994), Riddick (1996), Riddick et al (1999), Burden (2005) and Pollak (2005) have all chronicled what it is like to live with dyslexia. In the most part these studies focus on individuals who had their dyslexia identified at a relatively early age and have consequently lived with it for many years. Despite this the painful memories are very strong. They chronicle potentially devastating effects on self-esteem, associated with repeated academic failure, when support has either been delayed or had not been forthcoming. In addition, there are numerous 'unpublished' accounts on social media describing the frustration, anger and desperation of parents struggling to obtain help for their child; or individuals looking for support for themselves.

[2] Most individuals with dyslexia will have 'developmental dyslexia' meaning that they have had it since birth. Although it may not have been recognised it will have still been present. A small percentage of those with dyslexia have '*acquired dyslexia'*, normally following a brain injury.
[3] Funding for specialist tutorial support and provision of required equipment/software is available to UK nationals, undertaking degree studies, from the Disabled Student Allowance (DSA) (subject to qualifying conditions).

In order to receive appropriate support, individuals therefore need to have had their dyslexia identified; and in the case of University students, formally diagnosed by an Educational Psychologist or Specialist Dyslexia Teacher[4]. However, the complexity of the condition means that this is not always straightforward. It was therefore prudent to explore what dyslexia is before considering the impact on the individual and implications for the HEI.

1.2 Introduction to dyslexia

This section will begin by examining what is meant by dyslexia and review varying estimates of its incidence to highlight the scale of the issue. It will also explore the recent controversy which challenged if dyslexia does really exist, and if the term is a useful construct when considering support for individuals.

1.2.1 Definitions

Numerous definitions of dyslexia exist. Some choose to focus on causative factors whilst others highlight a range of cognitive functions which are likely to be affected by dyslexia. At the beginning of this research the lack of consensus regarding a definition of dyslexia was considered to be a minor issue. My initial intention had been to select one definition to portray the complex nature of dyslexia and orientate readers less familiar with the condition. However, as the research developed it became clear that this was a much more fundamental issue. If dyslexia experts themselves cannot reach agreement on what the condition is, and how it is manifested, there seemed to be little chance that the lay public, and in this case the students, will be able to grasp its multiplicity.

Definitions contained within the American Psychiatric Association (APA) Diagnostic Statistical Manual (DSM) have traditionally been accepted as the definitive source. The most recent, DSM-5 manual (APA 2013) chose to include the generic term 'Specific Learning Disorder' (SLD), to cover reading, writing and mathematical difficulties[5]. It suggested that a diagnosis of a SLD requires the individual to have experienced *persistent* difficulties in reading, writing, arithmetic or mathematical reasoning skills during the formal years of schooling. However, when considering adult learners, this reliance on accurate information about school day difficulties was likely to be

[4] Specialist Dyslexia Teachers who hold the AMBDA (Associate Member of the British Dyslexia Association) qualification or equivalent are permitted to diagnose dyslexia.
[5] The DSM-5 lists several sub categories under this generic umbrella but does not provide specific definitions of each.

problematic and may not reflect their current situation. It is widely accepted that dyslexic difficulties may only manifest as the task becomes harder (Mapou 2008), meaning that well compensated adults may not fulfil these criteria even though they are dyslexic.

I started therefore by considering the expert charitable bodies, the British Dyslexia Association (BDA) chose to define Specific Learning Difficulties collectively as factors which:

> "affect the way information is learned and processed. They are neurological (rather than psychological), usually hereditary and occur independently of intelligence." (BDA 2018a)

They state that SpLD is the umbrella term covering several co-occurring difficulties including dyslexia, dyspraxia[6], dyscalculia and attention deficit disorder/attention deficit hyperactivity disorder. When this research commenced their website included typical characteristics of each of these conditions. These were aimed predominately at the lay audience, but did not provide a clear definition of each. Since then they have added the following statement:

> "Contrary to popular misconception, Dyslexia is not only about literacy, although weaknesses in literacy are often the most visible sign. Dyslexia affects the way information is processed, stored and retrieved, with problems of memory, speed of processing, time perception, organisation and sequencing." (BDA 2018a)

Dyslexia International provided the following definition, stating that:

> *"*Dyslexia is neurologically based and often hereditary. It causes difficulties in reading, writing, spelling and organization. Dyslexia makes fluent reading difficult, which affects not only academic success but also self-esteem and social-emotional development*."* (Dyslexia International 2018)

With the previous focus on dyslexia focussing very much on children, it is perhaps not surprising that both these key organisations have described the condition drawing on, what many would agree, are the key features in children. What neither source acknowledges is the true pattern of difficulties or how they may present in adults which will be discussed in chapter 2. Furthermore, their choice of a relatively narrow definition was problematic. The key finding of this study was that students in general do not

[6] Or the alternative term Developmental Coordination Disorder (DCD)

understand what dyslexia is. As the internet is for many a primary source of information, the responsibility that these organisations have for raising awareness and their inability to fully achieve this was noteworthy.

In light of this, the definition chosen following a review of the literature, is much broader and was selected as it clearly identified potential difficulties considered during the assessment process across any age group. It was compiled by the Government Task Force on Dyslexia and states that:

> "Dyslexia is manifested in a continuum of specific learning difficulties related to the acquisition of basic skills in reading, spelling, and/or writing, such difficulties being unexpected in relation to an individual's other abilities and educational experiences. Dyslexia can be described at the neurological, cognitive and behavioural levels. It is typically characterised by inefficient information processing, including difficulties in phonological processing, working memory, rapid naming, and automaticity of basic skills. Difficulties in organisation, sequencing and motor skills may also be present." (Cremin 2001 p28)

In addition to illustrating the range of difficulties commonly associated with dyslexia, this definition highlights the neurological and cognitive basis identified through pivotal research studies. The research, conducted in an era when interest in dyslexia was at a peak, set the scene for our current understanding of the condition. Despite their age the studies selected below can all be deemed as seminal and form the basis of ongoing research to refine and expand the knowledge base. As evidence began to emerge during the 1980's and 90's the ideas were brought together by Morton and Frith (1995) in their Causal Modelling Framework, (see appendix 1). The first area identified in the model relates to neurobiological differences that are likely to have a significant impact on learning. These include structural abnormalities between the two hemispheres of the brain demonstrated by Geschwind and Galaburda (1985). Brunswick et al (1999) subsequently noted reduced left hemispheric activity during certain activities; whilst cerebellar immaturity (Nicolson and Fawcett 1999) and visual disturbances associated with the magnocellular pathway have also been acknowledged, (Stein 2001).

In addition, cognitive influences as a result of problems with phonological processing[7] (Wolf and Obregon 1992); poor metacognitive awareness (Tunmer and Chapman 1996); working memory (Miles 1993; Berninger 2004) and automaticity (Nicolson and Fawcett

[7] All key terms are defined in the glossary

1990) were thought to be influential. Finally, there is a wealth of evidence that illustrates the problems that dyslexic learners have with phonological awareness, (Pennington et al 1990; Hanley 1997; Rack 1997; Snowling et al 1997).

Spanning all aspects of Morton and Frith's framework were environmental factors which included the impact of the learning environment, educational policy and cognitive/learning styles. Each of these factors may exacerbate or ameliorate the impact of the neurobiological, cognitive and behavioural influences. Further detail as to how these factors manifest and the range of difficulties frequently associated with dyslexia is provided in chapter 2.

1.2.2 Incidence of dyslexia

Due to the range of criteria used to define dyslexia there were also wide variations in estimations of its incidence. The British Dyslexia Association (BDA) (2018b) state that 10% of the United Kingdom (UK) population are dyslexic, with 4% having a severe form. Dyslexia International (2018) propose that the incidence could be anywhere between 5 and 15% of the population. They state that the midpoint value of 10%, echoing the BDA figure, would mean that there are 700 million people worldwide who display traits of dyslexia.

The percentage of dyslexic students within HE is likely to be lower than in the general population as inadequate recognition and support will have prevented some dyslexic individuals from meeting the entry requirements. However, if the 10% incidence were replicated it would mean that at the time of data collection that there could have been approximately 2200 dyslexic students at the HEI featured within this research.

1.2.3 Dyslexia – myth or reality?

Despite the growing body of research, identified in section 1.2.1, which has started to provide a strong scientific and theoretical basis for dyslexia, there continues to be controversy surrounding its very existence as a 'condition'. In 2005 Julian Elliott, an Educational Psychologist (EP), sparked a media frenzy in a channel 4 documentary by suggesting that dyslexia was a 'myth' (*Dispatches* 2005). The points he was trying to make during the programme were later clarified in two articles in which he posed three fundamental 'questions', (Elliott 2005, 2006). Firstly, whether the term dyslexia helps to differentiate between children who have literacy difficulties that are dyslexia related, or due to other reasons? Secondly, whether it influences subsequent teaching interventions? Elliott (2006) suggested that it does not. He described a conversation with

one of his experienced EP colleagues who declared that the interventions he recommended following an assessment were often the same; whether the child was 'labelled' as dyslexic or not. This led Elliot to propose that if the term is unhelpful when attempting to differentiate between those in need of support for different reasons; and that if the interventions are unchanged, that there is no benefit in classifying the individual as dyslexic. He did however acknowledge that a formal diagnosis is required when allocating resourcing, as targeted support is only available to those who have been formally diagnosed. The fundamental and final question he poses then is to whether this is fair? Whilst Elliot's observations did have some veracity, particularly when questioning the fairness of resource allocation, the situation is becoming even more divergent. Since commencing this research government policy has changed and the significance of a formal diagnosis will in the future be even more critical. Further details of the changes and the impact they are likely to have are therefore outlined later in this chapter.

The Dispatches documentary generated a wealth of emotions, when it aired. Parents of dyslexic children and dyslexic adults alike expressed concern that support they had fought hard to obtain might be withdrawn if the condition was deemed not to exist. This gave rise to an article published shortly after the programme in which Elliott reflected on the way that the media had portrayed his ideas and the strength of reaction they had provoked, (Elliott 2006). In both this and a subsequent paper (Elliott and Gibbs 2008) he maintained that dyslexia is a problematic construct. Although the TV programme appeared to present a rather one-sided view, in his writings Elliott was able to clarify his thinking. It is important to acknowledge that he did not at any time suggest that dyslexia does not exist, merely that it is nebulous and that there are multiple understandings of the concept. Despite this the term 'myth' continues to be used, particularly by the media. The debate however well intended, has no doubt challenged the credibility of the term and may have potentially influenced those seeking an explanation for the challenges they face. Fundamental to Elliott's reasoning was the lack of uniformity in the pattern of difficulties exhibited by those with dyslexia and it is important to briefly address this.

1.2.4 Pattern of difficulties

It is not within the scope of this thesis, or the word limit, to explore the nature of dyslexia in depth; however, an understanding of the difficulties it can create, and individual variations, is important. A superficial understanding of the nature of dyslexia, and the difficulties it may cause, could lead to dyslexia being discounted as the person may not exhibit 'classic' symptoms. This is particularly important when considering

adults, as the problems they present with are often very different to those experienced by children with dyslexia. Appendix 2 summarises a range of difficulties which an individual with dyslexia might experience, with the key areas discussed in more depth in chapter 2. It is important to acknowledge however that no one individual will have difficulty in all of these areas; and that wide individual variations have been noted across each aspect (Miles 1993; Hanley 1997).

When considering dyslexia, it was also important to recognise that the majority of the research into the condition has focussed on children. There are relatively few studies exploring the impact on adults either within HE or the workplace. Although a great deal of the research could be transferred directly to the adult population, there have also been several pivotal studies which highlighted that adults often develop very sound coping strategies which may mask their particular difficulties, (Lefly and Pennington 1991; Miles 1993; Sterling et al 1998; Reid and Kirk, 2001). For example, an adult who struggles to spell a certain word is likely to have an extensive vocabulary and can therefore choose a different word to use. This may lead them to believe that they do not have a problem with spelling as they have found a way of overcoming their difficulty. It is often only as the task becomes harder that the individual will start to show signs of struggling, if they are unable to adapt the strategies that they have previously developed.

The significant personal variations and presence of coping strategies have meant that the identification of dyslexia in adults is a highly complex activity. This has the potential to delay a diagnosis if the individual is not recognised as being 'at risk', either by them self or those around them.

1.3 Diagnosing dyslexia

A formal 'diagnosis' of dyslexia is obtained following an in-depth assessment of the individual by an Educational Psychologist or Specialist Dyslexia Teacher. Within HEI's this is likely to consist of a two-tier system where an initial screening is performed which will indicate if a lengthier full assessment is warranted. The screening will establish the individual's educational history, genetic disposition[8] and then draw on a selection of 'subtests' which can be used to provide standardised data on a range of specific 'skills'.

[8] A strong genetic link has been established, with 4 genes currently being investigated to identify the specific gene(s) responsible. (Carrion-Castillo et al 2013)

Examples of screening tools used in this initial stage include **The Adult Checklist** originally developed by Chasty (unpublished) before being revised by Vinegrad (1994) and then by Smythe and Everatt (2001); **The Dyslexia Adult Screening Test** (DAST) (Fawcett and Nicolson (1998) and the **Bangor Dyslexia Test** (Reynolds and Caravolas 2016). Traditionally these tools formed part of a face to face initial screening. More recently this initial stage has moved to an on-line questionnaire that students can complete and submit for analysis at their convenience. This means that a fixed appointment is no longer required for the screening which has timesaving advantages for both the students and assessors alike.

Within the university study site, the screening tool of choice was that developed by Smythe and Everatt (2001) This consists of 15 questions, designed to explore a range of skills known to be affected by dyslexia where respondents are asked to indicate 'rarely', 'occasionally', 'often' or 'most of the time'. Scores for each question are then aggregated to give an overall 'at risk' which will help indicate if a more in-depth, and costly, assessment is required (Nicolson and Fawcett 1997). The tool is research based both in the criteria that it examines and also the threshold for each category. During development testing no student with a known diagnosis of dyslexia received a score of less than 45 when testing the checklist. The authors therefore concluded that it is unlikely that anyone scoring below 45 will be dyslexic. Scores between 45 and 60 were found to correlate with students known to have mild dyslexia, whilst those scoring more than 60 showed signs consistent with moderate to severe dyslexia. Use of tools such as this, therefore play a valuable initial role in assessing the likelihood of dyslexia. This ensures that full diagnostic assessments are only offered to students where the probability of dyslexia has been judged to be high.

Full assessments are expensive, typically costing between £300-500 if conduced privately. This is because of the highly specialised skills and qualifications that an assessor requires. Licence costs for the battery of standardised tools used within the assessment also need to be factored in, along with the time required to complete the assessment. In addition to the 3 hours required to conduct the face to face component, the assessor will need an additional 4-6 hours to analyse the data and compile an in-depth report. It is therefore likely that the cost associated with a private assessment could act as a deterrent to many of those who have considered it.

Within the Higher Education sector cost implications for students vary with many HEI's requiring the student to meet the full cost themselves. At the time of data collection the HEI in question did not make any charge for the initial screening and only required a contribution of £50 if students were referred on for the second stage full assessment.

However, as this research illustrates, this was not common knowledge amongst the student population and many respondents were deterred by what they perceived as the potential cost.

1.3.1 Changes to Disabled Student Allowance

Earlier in this chapter the change in UK government policy was mentioned. On 7th April 2014, part way through this research study, an announcement was made by the then Minister for Universities and Science, the Right Honourable David Willetts. He stated that there was a need for Disabled Student Allowance (DSA) to be reconsidered and modernised, particularly with respect to students with a SpLD. This was in part because since the DSA had been introduced in 1993 the requirement for this type of funding had changed. At that time the number of students who had access to their own personal computer, on which the assistive technology software they required could be loaded, was significantly lower than in the present day. A key component of DSA was therefore to provide such a computer. Today spiralling costs, in part due to the increasing number of students with a disability at university, along with the fact that most students now own a laptop meant that this could be reconsidered. In the ministerial statement Willetts (2014) proposed that the onus to provide support should shift to the universities themselves as part of their anticipatory duty under the then recently introduced Equality Act (Great Britain *Equality Act 2010*). This would mean that universities would meet the cost of this provision themselves, with only a small percentage of students receiving government funding. Subsequent guidance from the Department for Business and Skills [DfBIS] (DfBIS 2014a) and an Equality Impact Assessment (EIA) (DfBIS 2014b) attempted to clarify the criteria to receive external funding. They concluded that from the 2014/15 academic year that DSA was likely to be reserved for those with more complex needs. Since then the situation has continued to evolve, with modifications to the criteria and the date for full introduction of the guidelines being postponed by DfBIS.

The introduction of the new policy could have implications for this research in the future. In the past it has been evident, anecdotally, that some students considered the offer of a "free computer" as an incentive to be assessed. How the change in funding could impact on the recommendations of this study will be revisited in chapter six.

1.3.2 Benefits of obtaining a diagnosis – for adult learners

Irrespective of where funding for dyslexia support is derived from in the future, the importance of identifying students with dyslexia will remain. Earlier in this chapter the importance of supporting individuals with dyslexia by teaching them in a different way

was touched on in general terms. Providing the right type of specialised teaching was identified as one of the key 'benefits' of conducting a comprehensive professional diagnostic assessment by Grant (2002). He emphasised the importance of a *detailed* assessment in order to identify the individual's specific areas of both strength and weakness. This in turn enables the specialist practitioner, working with the student, to design an *individualised* programme of appropriate and *targeted* support. It could be argued that support could/should be offered to all students, echoing the views of Elliott (2006) discussed earlier. However, without an assessment of the students highly individualised profile, any support offered would be generic and not targeted to their specific needs. The significant individual variations which are particularly evident in adults with dyslexia make individualised support even more critical. It is important to acknowledge that Elliott was referring to children and as such his views may not be transferable to adults. Patton and Polloway (1992) previously drew attention to this through their insightful observations that adult dyslexics were not simply children with a learning disability 'grown up'. Similar views were expressed two years later by McLoughlin et al (1994) who proposed that adult dyslexia should be studied as a distinct condition; as the needs of the adult dyslexic population are quite different. Since this time the quantity of research surrounding adults has increased, but as previously stated, it remains significantly less than that concerning children.

1.3.3 Delays in obtaining a diagnosis and support

Despite obvious benefits in obtaining a diagnosis and receiving help, there are often significant delays in this happening which were important to understand. The complexity of the condition, individual variations, coping strategies and cost all have the potential to contribute to delays in an individual being formally diagnosed and receiving help.

Earlier in this chapter, findings from a large-scale study across 195 UK universities revealed that 43% of the dyslexic population in university are only identified during their time there, (Singleton 1999). As, in most cases dyslexia has been present since birth, these individuals will have gone through the entire school system without their dyslexia being recognised. Concerns at the number of children 'slipping through the net' exposed in the Singleton study led to a revised Code of Practice being published by the Department for Education and Skills [DfES] (2001). This provided guidance for Local Education Authorities (LEAs) along with a statutory duty to identify children who might have a special educational need and formally assess these needs. This clearly defined policy should have resulted in individuals with dyslexia being picked up at a much earlier

age, and reduced the number not diagnosed until university. Whilst it is perhaps still too early to judge the full impact of this initiative[9]; a significant number of students continue to be identified whilst on their degree. When the population of mature students and those on Post Graduate courses are also factored in[10] it is not surprising that anecdotal data has not shown any significant dip in the number of university students being diagnosed. Not all of these students can be described as experiencing a 'true' delay however as the group identified by Singleton (1999) is likely to have included individuals who had been given support for 'dyslexic type difficulties' whilst at school but who had not been formally diagnosed[11]. There would also have been those who had only reached the threshold where their difficulties had started to really impact on them when they encountered the academic challenge of higher education. As such it is difficult to quantify the true percentage of students who have slipped through the net. It is likely however that a significant proportion of students diagnosed at university would have experienced some difficulties throughout their school life. Studies exploring the educational experiences of dyslexic students at university have all revealed a pattern of difficulties, with the corresponding effects on self-esteem, which had impacted for many years prior to diagnosis, (Riddick 1996; Riddick et al 1999; Cowen 2005; Pollak 2005; Price and Skinner 2007; Glazzard 2010).

Although reasons why they had not previously been formally identified vary, commencing university with an undiagnosed learning difference will inevitably result in a delay in the student receiving support. This has implications for both the student as an individual and the HEI, each of which was explored.

1.3.4 Implications of a delayed diagnosis for the student

For the individual a delay in obtaining recognition of their dyslexia means that they will not be receiving the support that they need. This in turn puts them at risk of not fulfilling their potential. For many there may also be an associated impact on their self-esteem with the potential for reduced self-confidence. Despite there being a greater understanding of dyslexia today, there is a wealth of evidence which reveals that all too often a diagnosis is only made following repeated academic failure (Riddick 1996; Riddick et al 1999; Cowen 2005; Glazzard 2010). In all of these studies the participants described a pattern of difficulties, accompanied by academic failure, going back many

[9] Children entering the education system since 2001 have only started coming through the university system on Undergraduate programmes from the 2014/15 academic year
[10] These students would have gone through mainstream schooling before the Code of Practice was introduced
[11] GCSE examination boards currently permit extra time to be granted to children with an identified need, but without a formal diagnosis by an Educational Psychologist.

years. In the worst cases this can result in the individual failing to achieve acceptable levels of literacy and an inability to fully function in society. Dyslexia International (2018) identified that unaddressed dyslexia is the prime reason for children dropping out of education and becoming marginalised. They suggest that dyslexic people are over-represented in prisons, in adolescents who commit suicide and amongst those with mental health problems such as depression.

The potentially catastrophic implications of dyslexia on core literacy skills were first described by Stanovich (1986) when he described the 'Matthew effect', based upon a biblical reference to the poor becoming poorer. He related this to the difficulties that an individual with dyslexia may experience with reading and suggested that these were likely to result in them reading less. The inevitable consequence of this will be that their ability to increase their vocabulary is limited, and with this their reading skills. This is particularly pertinent when considering university students, for whom the ability to read both extensively and critically is paramount. However, with support in the form of assistive technology programmes which read passages aloud to students (Draffan 2009; Siabi 2011) the task of reading can become more manageable. This coupled with coloured overlays (Wilkins et al 2001) for students with visual perceptive difficulties[12] can assist students to meet the reading expectations of degree level study.

For many individuals with undiagnosed dyslexia, poorly developed literacy skills may have prevented them from achieving the academic entry requirements for university and we will never encounter them. There will be others however who arrive at university, often as a result of the widening participation agenda, with less developed study skills, (Weimer 2002). Unless these are addressed quickly there is a risk that these students will fail to cope with the academic demands of their programme and will either choose, or be forced to, leave, (Yorke and Longden 2004, 2007, 2008). Others, as highlighted by Richardson and Wydell (2003); Mortimore and Crozier (2006) and Pumfrey (2008), in the absence of appropriate support will graduate with an inferior degree than they were capable of achieving. This effect was also recognised by Farmer et al (2002) who found that the difficulties that some dyslexic students experienced at university impacted on their confidence to attempt tasks well within their capability. This often led to under performance and created a distorted picture of disability, with the true deficit and the additional secondary affect both evident.

In some cases academic failure will trigger students to request a dyslexia assessment. In research conducted as part of my Master's degree (Cowen 2005) all of the students

[12] These are sometimes referred to as Meares-Irlen syndrome, visual stress or scotopic sensitivity syndrome.

studied were facing discontinuation of their programme as a result of repeated academic failure. The students had all chosen to appeal this decision and had either requested, or been sent for, a dyslexia assessment as an outcome of their appeal. The majority were subsequently found to be dyslexic, which meant that they were allowed to continue their studies with specialist support. Had they chosen not to appeal, or if the appeal process itself had not led to a dyslexia assessment, these students would have had their programme of study terminated. It was also important to recognise that most of the students in my study were in their final year of their programme, something that was also highlighted by Nichols et al (2009) several years later. If these students had not been assessed, and subsequently had their learning difference identified, there could have been potentially catastrophic consequences for them as an individual. They would have 'wasted' several years of study only to leave without their desired qualification.

Academic failure, particularly where students are required to repeat a module or year, also has major financial implications for them. In 1997 the Dearing Committee (National Committee of Inquiry into Higher Education 1997) paved the way for students to pay towards their own tuition fees. Over the years the contribution they have been required to make has increased, until the academic year 2011/12 when students became liable for the full cost of fees at £9,000 per annum, (Browne 2010). With HEI progression regulations normally stipulating that students must complete an academic year before moving to the next, the implications are two-fold. First, students become liable for additional fees, for the extra modules and years of study. Second, the inevitable delay impacts on their lifelong earning potential as it will postpone them taking up graduate employment. The educational consequences for those who either receive a very late diagnosis, or none at all, are therefore obvious.

In addition to practical support to overcome their difficulties, obtaining a formal diagnosis frequently has a positive effect on self-esteem, as it provides the student with a reason for their difficulties. The harmful effects of living with dyslexia are well documented, (Osmond 1993; Edwards 1994; Riddick 1996; Riddick et al 1999; Cigman 2001 and Burden 2005). In all of these studies participants reflected back on negative experiences which damaged their self-esteem and self-confidence throughout their lives. A key part of the discussion which takes places when student are given the result of their dyslexia assessment[13] is around positive role models with dyslexia. By identifying highly successful famous dyslexics including Albert Einstein, Richard Branson and Bill Gates, students can be reassured that dyslexia need not be a barrier to success.

[13] At the study site all students receive the result of their dyslexia assessment face to face, this is not always replicated at other HEI's.

Although students may have some anxiety regarding their diagnosis of dyslexia[14], providing psychological support to help overcome deep seated insecurities and aid adaptation to the diagnosis has been found to be beneficial, (Riddick et al 1999, Price and Skinner 2007, Thomson 2009). The sooner this is available, the more positive the outcome for the individual.

1.3.5 Implications of a delayed diagnosis for the HEI and society

Aside from the obvious benefits to the individual of receiving a timely diagnosis, there are clear advantages to the HEI and society as a whole. Higher Education is seen as a route to economic growth across the globe. The European Union (EU) have set a target that 40% of 30 to 34 year olds in the EU will have completed tertiary or equivalent education by 2020, (Quinn 2013). However, before they can hope to achieve this they have identified the urgent need to tackle attrition as a significant number of students entering university do not complete their course.

Data relating to student admissions and withdrawals from university is published by the Higher Education Statistical Agency [HESA]. The most recent data published relates to the 2014/15 academic year when 340,275 students commenced a full time first degree within the UK (HESA 2017). Of these 22,515 (6.6%) did not continue into year 2, with attrition at the worst performing institutions approaching 28%. Overall it is estimated that 1 in 10 students fail to complete the course they started either leaving university altogether, switching to another course or exiting with a lower qualification than the programme that they enrolled on, (HESA 2017). Furthermore, there is evidence to suggest that in certain groups including those with disabilities,[15,16] who are traditionally underrepresented at university, the situation is more serious, (Quinn 2013). A decade earlier Richardson and Wydell (2003) identified that it was more common for dyslexic students to abandon their studies in the first year than for other students. The EU have therefore identified reducing attrition as a key target for HEI's, with the provision of adequate student support services as a means to address this clearly identified in the Bucharest Communique, (European Higher Education Area [EHEA] 2012).

This level of support, with the introduction in recent years of individualised and group support to students by universities, does appear to pay dividends. Smith and Lee (2012)

[14] Although the initial reaction is often one of relief there may be anxiety, particularly in adults, about possible implications of the diagnosis and the effect that it may have on career prospects.
[15] Other underrepresented groups include those from lower socioeconomic backgrounds, ethnic minorities and adult learners.
[16] Dyslexia, along with other SpLD, is classed as a disability under the Equality Act of 2010.

demonstrated this when they introduced a coaching programme for Accounting and Finance students who had failed the first assignment on their degree. As a result of the coaching they saw a corresponding increase in the pass rate for the module from 79% to 87%. Furthermore students who participated in their scheme achieved significantly higher grades for the year (average 71%) when compared with their peers (average 62%). The authors did not discuss if any of the students were found to have a SpLD but, based on the accepted incidence of 10% of the population, it is likely that those failing could have included students with undiagnosed dyslexia or another SpLD.

Others have targeted support at students who they suspect might be dyslexic, based on a brief screening questionnaire, (Wray et al 2008). This study, which is analysed in depth in chapter 2, found that the input was beneficial but also raised numerous questions. Not only was the screening tool, developed by the British Dyslexia Association found to lack specificity; a significant number of those deemed to be 'at risk' (48%) did not follow up the offer of a full dyslexia assessment. Reasons for this were not explored by Wray et al but are clearly important to understand. If HEIs could identify and support these 'high risk' students it would hopefully have a significant impact on both the student experience overall and on retention figures and grades achieved. The gaps in understanding exposed by Wray et al therefore acted as a major stimulus for this research.

The final area to consider from an HEI perspective is the increasing number of student complaints being received. Since the introduction of student tuition fees outlined in the previous section (Browne 2010), student expectations have been seen to increase dramatically. The Office of Independent Adjudicators (OIA) (2012), the body who review student complaints, noted a 20% increase in the number of complaints received since the higher level fees were introduced. Although the majority of these are subsequently turned down[17] the figures indicate that students now see themselves as 'customers' and have a clear expectation of the level of service and support they should receive.

1.4 Aim of the study

The previous sections have started to highlight the complexity of dyslexia and how this might contribute towards a delay in obtaining a diagnosis. What is less understood however is the part that personal factors play and how they impact upon the individual. This two-phase study was therefore designed to reveal why university students come

[17] 6% of complaints were settled, 8% were judged to be 'partly justified' and 4% judged to be 'justified'.

forward to be assessed for dyslexia at a particular point in time, or chose not to; and the factors which influence this. An initial aim was devised, although this had the potential to change as a result of the literature review:

> *To explore factors which influence university students' decision whether or not to be tested for dyslexia*

1.5 Chapter summary

This chapter has demonstrated how complex, and at times controversial dyslexia is as a condition and the challenges this may create in obtaining a diagnosis. The implications of this, in terms of a potential delay in gaining recognition and subsequent help have been explored. This established a firm rationale for undertaking the study which was designed to add substantially to the existing body of knowledge. The next chapter will introduce and review relevant literature.

Chapter 2: Literature Review

It is important to acknowledge that research is never conducted in an intellectual vacuum, and there will inevitably be a body of existing 'evidence' which can help shape the direction of future enquiry, (Polit and Beck 2004). This chapter begins by identifying how decisions were made surrounding what needed to be considered as relevant literature/evidence. It will then outline the multifaceted approach to how this was located, detailing the specific challenges this posed and how they were overcome. A brief overview of material considered as background literature will then follow, prior to a critical examination of the small number of papers which were more directly relevant. The final section of the literature review examined literature considered following data analysis which was used to contextualise my findings. It is introduced here, before being revisited during the discussion in chapter 5. The chapter concludes by identifying research questions which the literature search confirmed as being previously unanswered. These required further exploration and formed the focus of this research.

2.1 The process of identifying relevant literature

Having previously undertaken an MSc in dyslexia and conducted research as part of this I began the study aware of the challenges that would be faced when designing a comprehensive strategy to identify and review the literature. Within my own field of practice, Health Sciences and specifically nursing, there are several bibliographic databases that offer the researcher a user-friendly interface through which to conduct a systematic search. I knew from past experience that this would not be the case here. Published literature relevant to the study sits within various subject specialisms. Each of these has their own set of databases, some of which posed specific challenges.

Previous searches conducted using the education databases had demonstrated that they frequently failed to reveal relevant literature. This proved to be the case within this study. One example of potentially 'missed literature' was revealed following a search of the 3 education databases: ERIC, British Education Index and Australian Education Index. The term 'dyslexia screening' was entered since the year 2000 and revealed 56 hits. However, when the same term/ limits were searched within the specialist journal Dyslexia, 172 hits were uncovered. As this journal is indexed within the education databases all of these 172 sources should have featured in the broader database search. Jacso (2005 p 1537) suggested that this is often caused by the "artificiality of systems of indexing". It was therefore important that I acknowledged the potential that database

searches, normally the cornerstone of a literature review, may not be reliable and that other strategies would need to be employed to ensure key evidence was not overlooked.

This required a multifaceted approach which incorporated both systematic searches of bibliographic databases and serendipitous, or hand, searching. In addition to these traditional approaches a regular review of newly published theses, conference proceedings and also, perhaps surprisingly, textbooks were considered essential. Within a fast-changing area like health sciences textbooks are considered of limited value as they date very quickly, the same does not apply to dyslexia. The evidence base is evolving more slowly, with seminal studies from the 1990's, when research into the condition expanded dramatically, still widely referred to. Furthermore, many authors chose textbooks as a vehicle to disseminate their work in preference to journal papers. This is driven by their intended audience, who include Special Needs teachers within mainstream schooling. Members of staff in this type of role are unlikely to have access to specialist journals and will therefore rely heavily on core textbooks.

The inclusion of all potential sources of evidence was therefore important to this study. Historically empirical research has been judged as the only credible source of knowledge through which to inform scholarly endeavour. There are however occasions where it is not available and the inclusion of other forms of evidence have not only become accepted but are often essential, (Mays et al 2005; Gabby and le May 2011; Le May 2013). Table 1 tabulates other forms of evidence which are frequently utilised within health science to inform practice; several of which are equally valuable when considering educational practice. Parallels within education have been identified in the second column (my application), along with methods through which this information may be disseminated and can therefore be accessed.

Adopting a critical approach to determining what 'theory' might inform this study was particularly important when examining the evidence base surrounding dyslexia. Although there is a growing body of research on SpLD, as discussed in chapter 1, the majority of this relates to children. As such consideration needed to be given as to which papers were transferable. I was also aware of anecdotal reports contained within core textbooks and conference presentations, which whilst not research, could be defined as expert opinion. It was important that these were all identified and that material evaluated as transferrable was incorporated; whilst that judged to be less applicable needed to be treated with caution.

Table 1 : Alternative types of evidence (based on Le May 2013 p 33)

Within healthcare as identified by Le May	Application within education
Evidence based on structured evaluations of practice eg audit	Evaluation of teaching methods - shared through conference proceedings
Evidence based on theory which is not grounded in research	Likely to be encompassed in other categories ie expertise, evaluation etc
Evidence based on our expertise	Evidenced based on expertise - shared through conference proceedings and professional development sessions
Evidence gathered from our clients, patients and carers	Gathered from students through formal/informal evaluation - mainly unpublished so difficult to access
Evidence passed on to us by role model experts	As with healthcare - Accessed primarily through textbooks
Evidence based on policy drivers	Policy documents directing educational practice - normally accessed from official websites including DfBIS

2.1.1 Initial brainstorm

The search for literature began by identifying a range of topic areas which were likely to have relevance to the study. This initial 'brainstorm' was based on prior knowledge and exploratory reading, with topic areas considered outlined in Figure 1.

Having established the breadth of material to be reviewed, the next decision surrounded to what depth each aspect needed to be explored, and at what stage of the research. This was in part determined by pre-existing knowledge but also reflected the philosophical basis of the research design. Within exploratory qualitative research there is a tendency to limit the scope of an initial literature review to avoid influencing the collection and interpretation of findings, (Spiegelberg 1965; Moustakas 1994; Jenkins et al 2003; Flick, 2006). Similar views were espoused by Glaser (1978 p31) in the context of grounded theory when he suggested that "it's hard enough to generate one's own ideas without the rich detailment provided by literature in the same field". A preliminary review of the topic areas in figure 1 was therefore conducted at the beginning of the study, with relevant literature revisited as the research progressed.

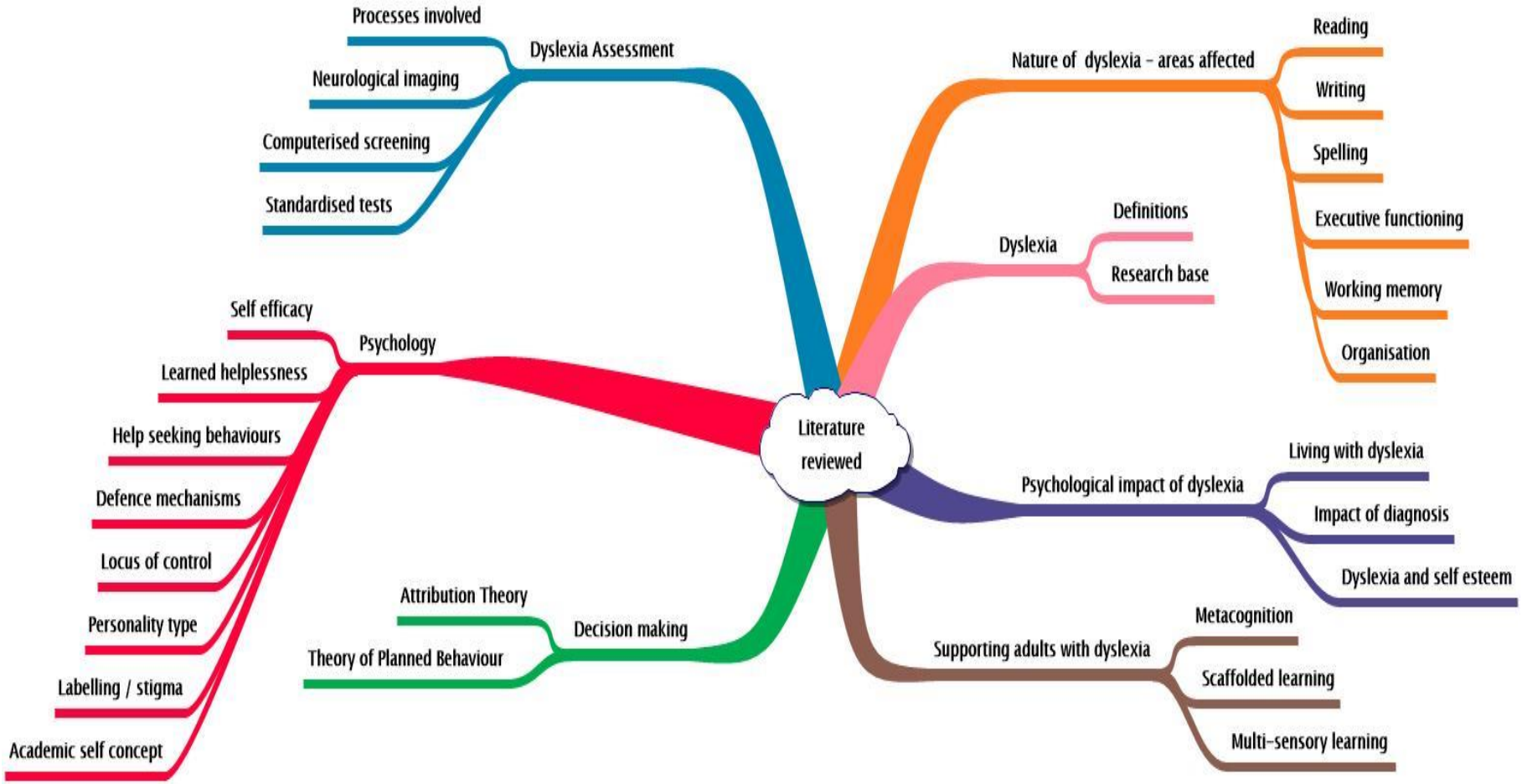


Figure 1 : Brainstorm of literature to review

This review of evidence employed several different strategies which were influenced by my own starting point in the field. The broad knowledge base I had developed through the MSc and my dyslexia advisor role meant that I was familiar with both seminal and recently published material in this field. As such I was able to access copies of key papers which I had saved over the last 15 years; building on this resource by undertaking up to date searches on specific areas as required. This provided a sound foundation in most of the areas identified through the brainstorm with the exception of 'mass screening in public health' which was a new area for me. Details of how I addressed this deficit are outlined later in this chapter. In light of this, the major purpose of the literature search was therefore to determine what, if any, prior research had been conducted on the topic of interest.

2.1.2 Bibliographic database search

Bibliographic database searches form a major component of any literature review. Whilst I was aware that these searches might not have been as reliable as those conducted using other subject databases, it was nevertheless important that I undertook a systematic search using them. Identified search terms were therefore entered into three major Education databases – ERIC, British Education Index and Australian Education Index and two Psychology databases - Psych info and Psych articles. Table 2 summarises the search terms and limits applied, acknowledging potential variations in terminology and other pertinent issues.

A record of the number of 'hits' obtained in the initial search is detailed in Table 3. The education database in particular yielded a large number of potential articles, the majority of which were found to be irrelevant. This was predominantly due to the broad search terms used, for example 'assessment' yielded in excess of 50,000 hits. However, a decision was made that it was preferable to identify too many articles which could subsequently be scrutinised and discarded manually; rather than potentially miss relevant literature by narrowing the search terms.

Table 2 : Search terms and limits applied

Topic area	Search terms used	Comments
Dyslexia	Dyslexia	These terms are used interchangeably within the UK. Consideration was given to include the term 'learning disability' favoured in USA literature but this dramatically increased the number of hits and included literature which was totally irrelevant. USA authors often cross reference as learning disability/ dyslexia meaning this was unlikely to be missed.
	SpLD	
	Learning Difference	
Identification	Assessment	Inclusion of the term 'assessment' in an education database proved to be inherently problematic but could not be avoided. The search yielded a high number of hits related to general assessment issues along with those related to a dyslexia assessment.
	Screening	HEI's frequently carry out a two stage assessment process with the initial stage classified as a screening.
	Diagnosis	Although seen as a contentious term because of its medical connotations many authors use the term diagnosis in preference to assessment or identification.
University students	Adult	Research related to adults, particularly within the HE sector was viewed as most relevant.
	Higher Education	
	University	
Search limits applied :	Since 2000	English language

Table 3 : Initial search record

Search no	Search terms	Education Databases	Psychology Databases
		ERIC British Education Index Australian Education Index	Psych Info Psych Articles
1	Dyslexia OR SpLD OR Learning Difference	18,729	2189
2	Assessment OR Screening OR Diagnosis	51,772	104,847
3	Search 1 and Search 2 combined	2610	304
4	Adult OR Higher Education	204,359	Applied as search limit before search performed
5	Search 3 and Search 4 combined	1382	NA

The 1382 articles identified via the education databases and 304 from psychology were all screened by reviewing the title of each paper to determine if the content was related to dyslexia. Where this was unclear the abstract was also examined to ensure that articles were not discarded prematurely. This revealed that the majority of 'hits' were not directly relevant. In total 18 papers from the educational database search and 6 from the psychology database were analysed in depth. Full text versions were carefully examined, but as anticipated the majority of papers identified through the databases were only of peripheral relevance. Four papers were judged to be directly relevant, with a further five offering a valuable insight. These are discussed further in section 2.4.

The search was re-run periodically throughout the research to ensure that no new literature was missed. Due to changes in the bibliographic software these were not exact replicas of this initial search, but provided confidence that all relevant literature had been considered.

2.1.3 Serendipitous searching

In addition to the database searches, and in light of previous experience of their indexing not always identifying relevant material, serendipitous searches were carried out regularly throughout the duration of the research. This included a review of several key journals, textbooks, theses and conference proceedings.

The first task was to identify which journals were likely to contain relevant articles and to devise a strategy to review these regularly. Within the field of dyslexia there are two specialist journals published; *Dyslexia* a UK publication with an impact factor of 1.227 published bi-monthly and the American *Annals of Dyslexia.* Both focus specifically on dyslexia along with co-morbid conditions and are aimed at a target audience of researchers and practitioners. Two journals that feature research on literacy acquisition, with a particular focus on the development of reading were also deemed to be relevant. These comprised *Journal of Research in Reading* and *Reading Research Quarterly* which both focus on linguistic, educational, psychological and socio-cultural influences on reading and as such often contain articles on dyslexia. Finally, based on sources which had been used extensively in previous work, two psychology journals were included. Although these both address the full scope of educational psychology they regularly feature articles on SpLD as they are aimed predominantly at Educational Psychologists. Furthermore with an impact factor of 3.158 the American *Journal of Educational Psychology* was important to include, along with the UK *Educational Psychology in Practice.* As the frequency of publication varied across the six journals selected, and to ensure that nothing was missed a Zetoc[18] alert was activated.

Zetoc draws on the British Library's electronic table of contents and provides access to over 30,000 journals and in excess of 52 million article citations/ conference papers. Alerts were set up in two ways. The first type of alert provides the reader with the table of contents from a selected journal each time it is published. This was activated for each of the 6 journals identified. In addition Zetoc allowed for subject searches to be created. A request for the terms 'dyslexia + assessment', 'dyslexia + screening' or 'dyslexia + identification' in the title was also activated. This ensured that articles specific to the topic area, but published in other journals, also triggered an alert.

The facility to access this service and receive notification every time that new material was published, both in relation to specific topic areas and from the individual journals was invaluable. As a part time researcher there was the potential that I might have

[18] Zetoc alerts can be set up free of charge via *http://zetoc.jisc.ac.uk*

missed an issue of a key journal being released. Receiving notification by email on a regular basis ensured that this did not happen. Despite the majority of the articles identified through the alerts being judged as not relevant to my study, using the electronic alert system proved to be an efficient and effective safety net.

Although journal articles will always provide the best source of up to date research findings it was important that other sources of evidence were not neglected. Prominent authors in the dyslexia field often choose to publish in textbooks and throughout the duration of the research regular searches were carried out on 'webcat' the universities electronic book database. In addition catalogues from publishers such as Whurr, who are the key publisher of books on dyslexia, were accessed periodically. Finally, regular updates from companies such as Amazon alerted me to key publications in the field ensuring that any new books were identified and if relevant accessed.

Regular searches were also carried out on databases indexing theses related to dyslexia. The majority of those located had studied children, however several studies provided useful background reading, (Lidbury 2007; Bartholomew 2007; Michail 2010). One key doctoral study involving students with Higher Education was identified as a result of the ongoing search strategy, (Ryder 2016). This was embargoed until 24th August 2017 but was then critically reviewed. As such it is included within the final section of this chapter, where evidence considered following analysis of the data is shared.

The final source of material that needed to be considered was conference papers. These can be difficult to locate as they are not formally published and consequently not indexed. Furthermore not all conferences will have undertaken a peer review process making the quality of papers difficult to determine. A decision was therefore made to restrict the review to papers accepted by major international conferences on dyslexia, where they would have been subject to a rigorous selection process. Conference programmes for the British Dyslexia Association (BDA), European Dyslexia Association (EDA), International Dyslexia Association (IDA) and Association of Dyslexia Specialists in Higher Education (ADSHE) were scrutinised and any presentation judged to be relevant reviewed. This provided an up to date awareness of contemporary research and whilst it did not identify any presentations covering a similar topic to that explored within this research it did enhance my background understanding.

2.2 Presentation of the literature

As discussed earlier in this chapter the literature review had several different purposes and is therefore presented in slightly different ways. The first collection of papers[19] provided background information on relevant topics including dyslexia in general, 'screening' from a health promotion perspective and psychology related literature. These were invaluable to enhance my understanding of the broader issues for example the nature of dyslexia and help seeking strategies employed by students. Some aspects of this literature were revisited later in the research, when analysing qualitative data to contextualise topics identified as important by respondents. However, as the majority of the background papers reviewed were not directly relevant to the specific area of interest for the study, a decision was made to present aspects of the literature review in different ways as follows:

Section 2.3 provides an overview of subject material which helped inform the research but which was not considered to be a key paper.

Section 2.4 critically reviews 4 papers considered directly relevant. In addition 5 seminal texts related to the topic of interest, but which were less transferable, were evaluated.

Section 2.5 introduces the literature considered following data analysis. In places this had been reviewed briefly prior to conducting the research but was revisited in light of my findings.

2.3 Review of underpinning / background literature

Over the last 50 years a wealth of literature has been published on dyslexia, how it is diagnosed and the impact that it has on an individual. Similar data exists on screening programmes, albeit usually from a public health perspective, and on psychology. Due to the broad search terms utilised for the database searches these yielded a wide range of peripheral papers. One example related to the inclusion of the term 'diagnosis' which revealed literature surrounding neurological imaging, computerised screening and standardised assessment tools, amongst other related topics. This literature helped to guide the direction of the research, but was peripheral to the main area of interest. To attempt to describe or even list the papers identified would be impossible within the word constraints. A decision was therefore made to provide a brief overview of each area

[19] Here the term paper is used in its broadest sense to signify any literature/evidence utilised.

considered when planning the research, with only key or seminal papers being identified.

2.3.1 Underpinning literature related to dyslexia

As previously stated it is not within the scope of this thesis to provide a detailed exploration of dyslexia itself, however it was important to demonstrate a grasp of literature related to the key areas. Table 4 identifies subtopics that emerged from the literature review, comments on their relevance and articulates how they have been used within this study. Where a body of literature was not explored the rationale for choosing not to do so is defended.

Table 4 : Overview of underpinning literature related to dyslexia

	Sub topics	Comments	Inclusion within the literature review
Processes involved in obtaining a diagnosis.	Neurological imaging	Neurological imaging has been used in research studies to detect the structural and physiological differences within a dyslexic brain but is not used as part of a standard diagnostic assessment.	No – imaging is not used as part of the assessment process
	Use of computerised screening programmes and/or checklists	Computerised screening has been used as a mass screening strategy for dyslexia but is not without its critics.	Literature related to computerised screening was reviewed. Its use is debated briefly in section 2.3.1.2
	Creation and testing of standardised tools to measure aspects of performance.	An awareness of the specific areas assessed through standardised tools was not required for this research. The use of screening checklists was introduced in Chapter 1 when explaining the process of assessment.	No as the focus of this research is the students' decision to be tested rather than the validity of the testing process
	Identification of key skills which may be affected by dyslexia.	An awareness of ways in which an individual might be affected by dyslexia was considered at the beginning of the research to be useful but not essential. It was recognised that a student's decision to undergo a diagnostic assessment might be influenced by their own understanding, with students potentially discounting dyslexia if they did not struggle with the more well-known areas of difficulty. At that point a decision was made that should this emerge from the data, that relevant literature would be examined.	Analysis of data obtained confirmed that this was an area that was influencing students. Literature related to key areas of difficulty is included in the post data analysis section of the literature review.

Table 4 continued

	Sub topics	Comments	Inclusion within the literature review
Psychological impact of dyslexia	Studies exploring the residual effect on adults who have grown up with dyslexia	The majority of research into the psychological impact of dyslexia relates to children, or to adults who have grown up knowing they are dyslexic.	This literature was reviewed and is incorporated into chapter 1 as it helps to justify the need for the research.
	Effect of dyslexia on self-esteem	Although these studies focus on individuals who have been diagnosed as dyslexic the impact of repeated failure prior to recognition is important to acknowledge.	Studies highlighting the effects of dyslexia on self-esteem are summarised briefly in section 2.3.1.1 as background information.
	Psychological impact of a dyslexia diagnosis	A small number of studies have explored the psychological impact of the diagnosis itself.	These studies were analysed as part of the in-depth literature review presented in section 2.5.
Teaching strategies designed to help individuals with dyslexia	Metacognitive awareness / learning styles	These highlight that when given appropriate support, and taught the 'correct' strategies that individuals with dyslexia can do very well. An awareness of this research reinforces the importance of obtaining a diagnosis and provided some justification for this research.	An awareness of teaching strategies was not necessary to conduct this research, although it was an area I was already familiar with. Literature on this topic is therefore not included within the literature review, but is referred to in places within chapter 1.
	Multisensory teaching strategies		
	Scaffolded learning techniques		

2.3.1.1 The psychological impact of dyslexia

Despite the recent increase in research studies exploring possible causes of dyslexia and evaluating different teaching strategies to help those affected, one large area is still un-researched and is what Burden (2005) described as 'the human side of dyslexia'. Where studies do exist they have tended to focus on those who have lived with dyslexia for some time, (Osmond 1993; Edwards 1994; Riddick 1996; Riddick et al 1999; Burden 2005) leaving the impact of being diagnosed in adulthood less well understood.

A previous study conducted as part of my MSc (Cowen 2005) explored the psychological impact of being screened for dyslexia and examined if there was a difference between those found to be dyslexic and those not. It identified that in those found to be dyslexic there was an overwhelming sense of relief, as it provided a reason for their difficulties. Although these findings were interesting, caution needed to be exercised due to the specific population studied. All the participants studied were facing discontinuation of their nursing programme due to repeated academic failure. For those students, a diagnosis meant that they would not be discontinued and could stay on course. This may have heavily influenced their feelings and it was important to see how students approached the decision to be tested when they were in a less vulnerable position.

A significant finding from my previous research (Cowen 2005) was the impact of repeated academic failure on self-esteem, across both those found to be dyslexic and those not. The studies by Osmond (1993); Edwards (1994); Riddick (1996); Riddick et al (1999) and Burden (2005) had previously all highlighted the potentially devastating effects on self-esteem associated with dyslexia. Whether the low self-esteem is directly associated with dyslexia itself or with the academic failure which often results, is not fully understood. However, it is hoped that by establishing an early diagnosis, students can be supported before they begin to fail, which in turn may help maintain their self-esteem.

2.3.1.2 Labelling and disability identity

The psychological impact of being 'labelled' dyslexic also needed to be considered. Dyslexia is classified as a disability under the Equality Actreat Britain *Equality Act 2010*). Whilst this does provide access to funding via the Disabled Student Allowance (DSA) for eligible students[20], students may not wish to be told that they have a 'disability' however sensitively this is done. Students often express anxiety about the implications of the

[20] To be eligible for DSA students need to be registered for 50% of the credit required to obtain an UG/PG degree. International students are not eligible.

diagnosis and the prospect of declaring it to future employers, which may influence their decision making when considering being tested. Hogg and Vaughan (2002) proposed that people are guided by a self-enhancement motive, in other words they are motivated towards maintaining a positive self-image, which helps them to preserve a positive self-esteem. They continued by saying that individuals avoid circumstances which challenge their self-identity. It is possible that being diagnosed with a condition such as dyslexia may affect this and the possibility of students avoiding a formal diagnosis to preserve self-identity needed to be explored further. Literature relating to disability identity was therefore considered. Forber-Pratt et al (2017) conducted a systematic review of 41, predominantly qualitative, empirical studies on the topic. They concluded that "disability identity can be considered a unique phenomenon that shapes a person's way of seeing themselves, their bodies, and their way of interacting with the world", (Forber-Pratt et al 2017 p2). What was notable however was that the majority of papers considered within the review had looked at individuals with multiple physical disabilities. Only one paper considered dyslexia and another looked at intellectual disability in broader terms. This is reflected in the conclusion stated above, which explicitly mentions "their bodies" and leaves the impact of an unseen disability less clearly understood.

The emphasis on physical impairment has been evident in the literature for some time. In an attempt to address this, an earlier study by Olney and Kim (2001) conducted focus groups with university students who had a disability judged to affect mental or cognitive functioning. Within their sample participants had a range of conditions including neurological impairment, brain injury, psychiatric disorder and learning disability[21]. Although the authors acknowledged the diversity of these four types of condition they found what they described as "striking similarities" in the challenges that they faced, and strategies employed, (Olney and Kim 2001, p563). One notable finding was that having a hidden disability brought with it advantages and disadvantages to the individual. Individuals were seen to have more control over their identity, and often 'normalised' their difference in order to pass as non-disabled; the lack of an obvious impairment meant that they may not be offered support and adjustment that they might benefit from however.

All of the literature reviewed relating to disability identity has understandably studied those who knew they had a disability. What was unclear at the commencement of this research was whether students considering being assessed for dyslexia were influenced by this. A diagnosis of dyslexia is a potentially life-changing event, and a decision to

[21] The Olney and Kim (2001) article was based in the USA where the term learning disability often includes what in the UK would be termed an SpLD.

undergo an assessment is likely to be influenced by this. A significant component of this research was therefore designed to explore the emotions triggered by the prospect of the assessment process, and the part they potentially played in deciding whether to seek a diagnosis or not.

2.3.1.3 Computerised screening for dyslexia

Having established that dyslexia screening is normally provided on a 'on demand' basis there have been a small number of studies which have explored the use of a computerised screening programme to detect signs of dyslexia. One of these by Wray et al (2008) explored the use of mass screening for dyslexia on a cohort of student nurses. Due to its relevance to my own field of practice this will be examined in depth in section 2.4.4.

Others have been used either in isolation or as part of a multistage assessment. Nichols et al (2009) compared a tutor delivered assessment with an online one. Their results demonstrated greater sensitivity in the tutor based assessment (91% compared with 66%[22]) and lower specificity (79% in contrast to 90%). This led them to conclude that computer based assessments have a part to play but only as the first stage of a two-stage process.

Singleton et al (2009) were more positive. In their sample of 70 dyslexic adults and 69 non- dyslexic controls they found that the computerised test significantly discriminated between the groups with a sensitivity of 90.6% and specificity of 90%. They therefore concluded that computerised screening offers a valid and useful method of assessing for dyslexia. Whilst these results are encouraging, a key driver in their research was the need to identify a cost-effective method for assessing individuals. The principal investigator Chris Singleton had led a seminal study a decade earlier which had revealed the number of students identified as being dyslexic after their admission to university, (Singleton 1999). Although this subsequent study (Singleton et al 2009) offered a cheaper, and potentially faster, alternative to a tutor based assessment there are other important factors to consider.

It is common practice when screening for dyslexia to offer the individual emotional support, both when considering whether to have the test and when receiving results, regardless of the outcome, (McLoughlin et al 1994; Miles and Miles 1999; McLoughlin 2001; McKissock 2001). The importance of this cannot be underestimated and was

[22] Acceptable levels for sensitivity are 80% and above, whereas specificity should be at least 90% for a test to be regarded as satisfactory, Glascoe and Byrne (1993).

demonstrated by Sanderson (2000) when exploring the use of computerised assessments. Not only did this study identify that the assessments could not be considered reliable or valid, but that they led to a dramatic increase in the demand for emotional support when students read their computer-generated report. Sanderson described how 3 out of the 10 students were reduced to tears by what they read.

2.3.2 Underpinning literature related to psychology

Prior experience of working with students with dyslexia meant that I was aware of psychological factors which might influence their decision making. It was therefore necessary to understand the key theories which underpin these, without allowing them to unduly influence the data collection. The potential to introduce bias when interviewing students was recognised and therefore reading on these topics was restricted to an overview prior to data collection. A database search was conducted on each of the following topics: self-efficacy, learned helplessness, help seeking, defence mechanisms, locus of control, personality type, labelling and stigma. Inevitably this yielded a large number of hits on each topic; therefore to reduce potential bias and to keep the body of literature reviewed manageable reading was restricted to a small selection of key papers on each topic, unless otherwise stated. Where topics were identified through the data analysis as being relevant to the students participating in this study a secondary more specific search was conducted post analysis. These are used to contextualise my findings in chapter 5.

The concept of *self-efficacy*, which describes our judgements of what we think we can, or cannot do, was first identified by Bandura (1977, 1986). Since then the impact of this on adult learners has been well documented, both in general terms (Cervone et al 2006); and in relation to those with dyslexia, (Stanovich 1986; Farmer et al 2002). All of these authors have described how individuals who were experiencing difficulties with a certain task frequently lost confidence in their ability and avoided certain situations. This can potentially be explained, at least in part, by considering the theory of *learned helplessness* described by Seligman (1975). He outlined a state of apathy which could occur when an individual is faced with uncontrollable negative events leading them to fail to take action which could improve their situation. Neither concept emerged from the data collected in this study, in contrast most students identified themselves as 'doing okay' and therefore this area was not pursued post analysis.

Other relevant psychological theories include the work by Freud (1937) which identified key *defence*[23] *mechanisms* which an individual might employ when faced with a stressor. These suggest that avoidance is a powerful and valuable coping strategy designed to protect the individual from stress. The negative effects of stress are well known and feeling out of control of one's personal situation has been linked to both physical and psychological ill health. Whether an individual feels that they have personal control was described by Rotter (1966) when he identified the concept of *locus of control.* This suggests that an individual has an internal locus of control where they feel that they can exert influence over events in their life, but individuals who feel that outside forces determine what happens to them have what Rotter describes as an external locus of control.

Work on *help seeking* behaviours has indicated that the university students who were the least skilled at managing their emotions also had the lowest intention to seek help, (Ciarrochi and Deane 2001). This study used a psychometric test, the 'General Help-Seeking Questionnaire' (GHSQ) which they developed to assess adolescent's intentions to seek help from different sources and for different problems, (Wilson et al 2005). Due to the nature of the questions asked in the questionnaire relating to suicidal thoughts, it was not appropriate to use this in its existing form within the research. Although it could have been modified to reflect the topic of interest, the potential to lead respondents was considered too great and a more open question approach was judged preferable. The notion of help seeking was evident from data analysis however and a deeper exploration of literature relating to this was carried out and is presented in section 2.5.

The part that defence mechanisms for example denial or rationalisation, might play in influencing a student's decision to be screened for dyslexia screening has previously not been evaluated. Some authors have suggested that students may be anxious about the outcome; feeling that if they are not found to be dyslexic that it confirms the students fear that they are just 'stupid' (Rack 1997). However, the relief expressed when students realise that there is a reason for their difficulties, rather than being 'stupid' or 'thick' is also well documented, (Cowen 2005; Pollak 2005). This study revealed evidence of denial and rationalisation, and an exploration of Attribution theory was therefore carried out post analysis. This is introduced later in this chapter before being applied to my findings in chapter 5.

[23] The original work by Freud spelt defense with an 's', more recent literature has tended to use the spelling given above which will be used throughout this thesis.

Finally, the significance of different personality traits when considering going forward for screening is unknown, but might have emerged as important during this study. As it was outside of the scope of the research to analyse personality a decision was made to not review this extensive body of literature unless it emerged as important in decision making. This proved not to be the case and therefore this literature was not considered as part of this research.

2.3.3 Underpinning literature related to public health screening

As students are screened for a Specific Learning Difficulty (SpLD) it was important to look at more general papers regarding screening, including literature related to methods of mass screening and barriers to participation. This provided an insight into the design of screening 'tools', different types of targeted/mass market approaches and reasons why uptake is not always good. Key principles from this are summarised below and were beneficial when critiquing the study by Wray et al (2008). However, as mass screening was not being contemplated as a way forward, and as the context is very different, this body of literature was only useful as background information.

This was predominantly because the use of mass screening is usually associated with public health initiatives, where it is well established in the detection and subsequent treatment of a variety of conditions. In order to be effective and resource efficient Hakama et al (2008) have highlighted that consideration should be given to *sensitivity* and *specificity* when designing a screening programme. They define sensitivity as "the capacity to detect cases in the preclinical detectable phase amongst those screened" (p 1405) and specificity as the "ability to correctly identify subjects" (p1405) and thereby reduce the number of false positives. One of the adverse effects of mass screening in a health context however is the potential for over diagnosis and over treatment, (Bailey et al 2005; Hakama et al 2008). It is therefore essential that any screening programme needs to be well designed to identify the target population. It must also be sensitive enough to highlight those affected avoiding false negatives raising alarm by identifying false positives, or, an issue exposed in the Wray et al (2008) study.

The success of any public health screening programme is heavily dependent on uptake. An extensive literature base exists highlighting why individuals choose to participate in screening or not. It was initially thought that this literature might prove a valuable insight into the decision-making processes and inform this study. However, despite carrying out a wide review, it has not been possible to identify any studies where the impact of the 'disease' is comparable. There is a significant amount of literature which explores screening programmes for cancer including cervical smear testing,

mammography for breast cancer and faecal occult blood tests for bowel cancer, amongst many others. Uptake is often low and many authors have tried to establish reasons for this. This literature was reviewed, but was not considered transferrable. Cancer is seen by the public as a life-threatening illness which was likely to have influenced the uptake of screening, dyslexia is not. Other studies on topics such as HIV testing or genetic screening were also reviewed but again the impact of a positive result was very different to a diagnosis of dyslexia.

The main reason for not pursuing this area further however was that although the term screening is used as the first stage of a dyslexia assessment, the way it is organised is very different. At the university study site, the opportunity to be screened is open to any student who requests it. There is currently no attempt to invite everyone to be screened which makes it very different from the mass screening programmes seen within public health.

2.3.4 Section summary

The previous sections have provided a brief overview of literature which informed the study but were either considered not directly relevant or in the case of psychological factors were restricted to an initial overview to minimise potential bias. The next section provides a more in-depth exploration and analysis of key/seminal texts which were directly relevant to my research.

2.4 Review of key papers

The detailed and systematic search for evidence outlined in section 2.1 resulted in nine papers being identified which were of direct relevance to the proposed study. Of these four were viewed as key. Of the nine studies, three looked specifically at how adults feel about being screened for dyslexia, with one further study exploring the use of widespread screening in student nurses. The remaining five papers, whilst relevant all focussed on school age children or well established dyslexic adults and were consequently of more limited application. All these studies had limitations, which confirmed the need for further research into this area.

2.4.1 Farmer, Riddick and Sterling (2002)

This was the first study which specifically set out to explore how university students feel about being assessed for dyslexia and as such made an important contribution to the field. Questionnaires were sent out to all students who had undergone a full dyslexia

assessment at two universities in the UK to explore dyslexic students' experiences of the identification process, assessment of needs and subsequent support. The questionnaire consisted of 80 questions the majority of which were yes / no responses to reduce the amount of writing the students were required to do. Where appropriate students were then asked to expand on / qualify their answer to certain questions in a free text box. The main areas of interest were as follows:

- Was it a first assessment or had they been assessed before?
- Had they initiated it them self or were others involved?
- Did they already suspect that they were dyslexic?
- What were their views on dyslexia prior to the assessment?
- How do they feel that their significant others view dyslexia?
- Whether the nature / content of the assessment was explained in advance?
- Information relating to the location, timing and pace of the assessment.
- Interpersonal factors relating to the assessor.
- The nature and timing of feedback following the assessment.
- Consequences of the assessment.

Responses were obtained from 74 students which constituted a 30% response rate.

The study provided interesting findings about why students are being assessed and how they feel about aspects of the process. 57% of students sampled had previously been assessed, with only 43% undergoing assessment for the first time. One student was being assessed for the 4th time as exam boards require up-to-date assessments (normally within 2 years). 67% of students already suspected that they were dyslexic.

The influence of others when deciding to be assessed was identified but not explored. 13 students (32.5%) made the decision to be tested themselves. For 7 (17.5%) it was a joint decision, 6= self + lecturer, 1= self + dyslexic friend. The remaining 20 students (50% of respondents) sought an assessment on the advice of someone else:

- Lecturer x 11 students
- Parents / school x 4 students
- Student services x 3 students (all required an updated assessment)
- Employment services x 1 student
- Friend x 1 student

In these cases the research findings highlighted that the students appeared to be more embarrassed / negative about the process.

Student also expressed anxieties about the potential outcome of the assessment many were concerned that they would not be dyslexic but just "thick". For many the unknown nature of the assessment was stressful and the research suggests that further exploration of this would be valuable. Although 50% of the students stated that they had found the process stressful, most of them could not suggest ways that it could be improved. Where suggestions were made, these related to organisational issues such as speeding up the timing of assessments / feedback.

Finally, 35% felt that they had not had sufficient opportunity to talk through implications of the assessment, but the closed nature of the questionnaire does not explain why.

Table 5 : Main strengths and limitations of Farmer et al (2002)

Strengths
• This was the first study which specifically set out to explore how university students feel about being assessed for dyslexia and as such makes an important contribution. • The questionnaire was piloted by students with dyslexia and modifications made to enhance understanding. • The study set out to explore anecdotal findings from Singleton (1999) which had suggested that some students find the assessment process stressful.
Limitations
• The use of an 80 point postal questionnaire is questionable when targeting dyslexic learners. Although attempts were made to pilot it and use predominantly closed questions the length of the questionnaire will have deterred some students with dyslexia and is likely to have contributed to the low response rate. • The study only asked students to state yes / no as to whether they had suspected that they were dyslexic before the test. The authors suggest that it would be useful in future research for this to be investigated further. • Only those students who had undergone a full assessment were targeted. This therefore excludes students who were screened but not referred on for the full assessment.

The study started to expose how university students felt about being assessed for dyslexia but due to its questionnaire format did not provided the in-depth understanding that was really required to address the issues. The authors themselves identified several areas which require further research many of which have been incorporated into my study. In addition Farmer et al only looked at students who had undergone a full assessment. As such data from those who had considered if they might be dyslexic but had not sought an assessment; and from those who only underwent screening was not considered. My study included these students too.

2.4.2 Cowen (2005)

This phenomenological study was designed to explore how it felt from a students' perspective to be referred for screening for dyslexia following academic failure. In depth interviews were carried out with 6 student nurses, 3 of whom had been diagnosed as dyslexic and 3 who had not.

The research clearly demonstrated the devastating impact that continued failure has on the adult learner. Very few differences were noted however in how the students felt, between those who were dyslexic and those who were not. The only area in which there were significant differences was related to the availability of academic support. Students who were identified as dyslexic could access specialist support from Dyslexia Services, whereas those who were not dyslexic had no equivalent support system. This was a particular bone of contention for those found not to be dyslexic.

Three key areas emerged from the research. There is a need for earlier recognition of dyslexic difficulties so that support can be offered to the students sooner. Students who are failing need to be supported emotionally, as well as academically, to reduce the potentially devastating effects repeated failure can have on their self-esteem. Finally, that there is a need to develop ways of supporting all weak students not just those with dyslexia. This needs to be appropriate to their type of difficulties.

Table 6 : Main strengths and limitations of Cowen (2005)

Strengths
• Explored the impact of the diagnosis on university students
Limitations
• Small scale • Restricted to just nursing students • All students were facing discontinuation of their programme which is likely to have influenced how they felt at that time. • The decision to be screened was directly associated with their academic appeal.

Although this study provided a valuable insight into how the students felt about being diagnosed with dyslexia, this was often clearly linked to the fact that they had failed multiple assignments. As they were facing discontinuation of their programme a diagnosis of dyslexia provided a 'lifeline.' The diagnosis meant that they would win their appeal against discontinuation and it therefore cannot be assumed that students who were not in the same position would feel the same way. The research also only considered students who had been formally assessed, focussed on the 'diagnosis' and

was restricted to one subject area – nursing. There was therefore a need for further research to build on Cowen (2005) which would explore events leading up-to the assessment and include any student not just those known to be struggling.

2.4.3 Pollak (2005)

The purpose of this study was to explore how university students who had been identified as dyslexic defined dyslexia and described their own experiences of being dyslexic at university. In total 33 students took part from 4 different universities, representing a mix of traditional and new style universities. 17 were from an older traditional university in the north, 3 from a new university in the south, 8 from a new university in the midlands and 5 from a younger traditional university in the south. The sample included students with wide age range (18-53), varied educational histories and studying a range of vocational and traditional subjects. In total 13 men and 20 women completed in-depth personal interviews lasting 90 minutes. All but one of the mature students (over 25) had recently been diagnosed whereas most of those under 25 had been identified in childhood.

The experience of assessment was similar for most students in two ways. They had been advised that assessment was necessary because they had a problem. They feared a verdict of 'non-dyslexic' which would suggest that they were just 'unintelligent'. Unintelligent was the term chosen by Pollak within the report – in the transcripts / quotes students usually used the term 'stupid' in common with other studies.

Table 7 : Main strengths and limitations of Pollak (2005)

Strengths
• Studied experiences of university students. • Provided a great deal of insight into the whole experience of life at university.
Limitations
• Breadth of experiences considered means that there is not a great deal of detail on any one aspect. • Approximately half of the students had been diagnosed during childhood.

This was a valuable study as it explored in depth the impact of dyslexia on university students. The findings highlighted a range of emotions which occurred as a result of the formal diagnosis including relief versus suddenly seeing themselves as 'disabled'. It also demonstrated the part that others such as educational psychologists, friends and family play in supporting the student in relation to their dyslexia. Finally, it identified a range

of coping strategies which the students employed, related to both emotional coping and acquiring new skills to facilitate learning.

However, like previous studies a significant number of the respondents had been diagnosed in childhood. The research also revealed that the majority of students were advised that the assessment was necessary, which implies that it may not have been their choice to be assessed. It also did not include students contemplating screening/assessment nor examine reasons why students may choose not to be assessed, which my study has been designed to do.

2.4.4 Wray, Harrison, Aspland, Taghzouit, Pace and Gibson (2008)

This study was designed to identify un-diagnosed rates of specific learning differences in a cohort of student nurses and to investigate if targeted study skills support for those identified at risk would aid student retention. The British Dyslexia Association (BDA) adult dyslexia checklist was used to screen a whole cohort of student nurses, and 69 students were identified as scoring 7 or more, which is the agreed threshold for possible dyslexia using this tool. Targeted study skills support was subsequently introduced and student progress monitored over the first year. The study skills sessions were evaluated and were considered by all to be beneficial.

Of the 69 students identified as at risk, 36 went on to be tested with 27 of these being diagnosed as dyslexic. This represented 39% of those identified as at risk and 11% of total cohort. The authors note that these figures indicate that the BDA checklist is yielding a high number of false positives. Within the university where I work approximately 47% of students who request an assessment are subsequently found to be dyslexic. However, when only those referred on for a full assessment following screening by a dyslexia specialist are considered, this rises to 70%. It would therefore appear prudent to conduct a cost/benefit analysis to determine if mass screening is even cost effective, leaving aside the ethical considerations touched on in section 2.3.3.

The increased number of students identified as ‘at risk’ also caused resourcing issues. Early recognition speeded up the process of assessment initially, however the increased demand soon created problems. This led to delays in obtaining an Educational Psychologist assessment and subsequent ‘needs assessment’. The importance of not creating a demand which cannot be met, and of using tools which have high sensitivity and specificity, are therefore paramount.

Table 8 : Main strengths and limitations of Wray et al (2008)

Strengths
• Only study of its type • Nursing students so directly relevant to own practice
Limitations
• No attempt was made to explore why students identified at risk did not go forward for screening. • BDA checklist may result in high number of false positives

The findings of this research highlight the potential benefits of providing study skills support but also raise a lot of unanswered questions. Only 52% of the students found to be at risk went on to be screened for dyslexia with 48% choosing not to be screened. It was not part of the remit of the Wray et al study to explore reasons for this, but this is clearly an area which requires further investigation. If students are being identified as being at risk of being dyslexic but are not being formally assessed there is a real need to understand why this is; particularly when such a high percentage of students are affected. My research therefore built on the findings of Wray et al to provide answers which will allow those involved in higher education to address this for future students.

The following 5 articles were also evaluated as they provide a valuable insight into the issues and ways of exploring this area. Due to the specific nature of their sample they were not considered directly relevant but still warranted careful appraisal.

2.4.5 Riddick, Sterling, Farmer and Morgan (1999)

Although it predates the search limits defined in Table 2 this research is considered to be a seminal text as the first significant study to explore dyslexic students at university. It remains widely quoted and has been replicated/built on since including through the Carroll and Iles study (2006) analysed in section 2.5.7. Its aim was to investigate wellbeing and educational experiences of a group of 16 dyslexic students at a UK university with 16 matched controls. Participants were asked to complete a questionnaire created by the researchers to gather information on past and present educational history. Their self-esteem was also measured using the Culture-free Anxiety Inventory (Battle 1992). This is a well validated tool with high reliability (over 0.80) and validity levels, which measures general self-esteem (16 items), social self-esteem (8 items) and personal self-esteem (8 items). The adult version also includes a 4th scale (8

items) to measure truthfulness. Anxiety levels were then measured using the State-Trait Anxiety Inventory (STAI) (Spielberger et al 1983). This measures two aspects of anxiety, 'trait anxiety' which is considered to be an enduring personal level of anxiety and 'state anxiety' which is the level an individual will experience in response to certain stimuli. All students were then asked to complete an essay on their recent educational history. Finally, the 16 dyslexic students also took part in a structured interview.

Their findings revealed that the dyslexic students displayed more anxieties and feelings of academic and written incompetence than their matched peers. They reported experiencing higher levels of negative emotions and anxiety whilst they were at school but stated that these had diminished over time. However, when they commenced university the dyslexic students compared themselves to their peers which often resulted in negative feelings as they perceived themselves as struggling compared to their peer group. The study also demonstrated a trend for dyslexic students to show a higher level of anxiety on the STAI but this was not considered to be significant.

Riddick et al (1999) was considered an interesting paper as it explored the impact of dyslexia on university students. The focus was on students who had previously been diagnosed however, rather than those contemplating screening / assessment which meant that it was only relevant as background information.

2.4.6 Burden (2005)

This was designed to explore the importance of key psychological concepts including self-efficacy, locus of control and learned helplessness in relation to dyslexia. A sample of 50 boys was selected from within a small specialist residential secondary school for dyslexic pupils. Four methods of data collection were employed. The 'Myself-As-a-Learner-Scale' (MALS) which had been developed by Burden from previously validated tools was used to measure young people's perceptions of themselves as learners / problem solvers within an educational context. Additional data were then obtained via the Dyslexia Identity Scale (DIS), a 25 item questionnaire to explore indicators of self-efficacy and locus of control; and from in-depth semi structured interviews. Finally, an open-ended sentence completion instrument, 'all about me', was used to check consistency of responses. This covered similar material to that explored through the interview schedule and helped improve reliability. The findings suggest that with the right kind of educational provision that people with dyslexia do not necessarily express lifelong feelings of learned helplessness or depression. However, caution does need to be exercised when interpreting these findings. The study was conducted in an atypical educational environment, namely a specialist residential school with a total population of

83 pupils. The school had a well-established record of academic success which may not be replicated elsewhere. Furthermore, the number of pupils and residential status would have facilitated a level of emotional support not available in main stream education. Therefore, although the issues raised in relation to self-efficacy, locus of control and learned helplessness mirror areas of interest in this study the age group and specialist nature of the school mean that there was still a need for these issues to be explored in adults within higher education.

2.4.7 Carroll and Iles (2006)

This study was designed to build on the Riddick et al (1999) study and explore anxiety levels in dyslexic students within higher education. A sample of 32 students of whom 16 were dyslexic completed a questionnaire designed to measure academic anxiety, social anxiety and appearance anxiety. These three areas were selected to determine if dyslexic individuals are specifically anxious about academic achievement (academic anxiety); or if this is generalised to other areas of their lives. Carroll and Iles established reliability for the anxiety scale as 0.878 with the subscales coming out as 0.903 for academic anxiety, 0.870 for social anxiety[24] and 0.892 for appearance anxiety[25].

Replicating the method from Riddick et al, the study used the State-Trait Anxiety Inventory (Spielberger et al 1983) as a major feature of data collection; however, the way in which it was employed was enhanced. Participants began by completing the TRAIT anxiety test to establish a baseline. Once this was completed the students were told that they would shortly be asked to do a reading test, but before doing so the STATE anxiety test was used to ascertain the impact of the forthcoming test.

The study clearly established that state anxiety scores were higher when dyslexic students were faced with a reading test. The dyslexic students also had higher levels of trait anxiety related to both academic and social situations. However, there was no difference in appearance anxiety – indicating that students responded to specific stressors rather than a general state.

The authors went on to propose that students may need counselling to cope with on-going issues such as unhelpful coping strategies, damaged self-esteem and high anxiety levels whilst at university. Although this is one of a limited number of studies which explore the impact of dyslexia on university students, the fact that it considered

[24] Questions on social anxiety explored how respondents felt about social situations including meeting new people, being in a crowd etc.
[25] Appearance anxiety explored how they felt about their physical appearance.

previously diagnosed dyslexic students, rather than those contemplating screening /assessment limited its relevance.

2.4.8 Armstrong and Humphrey (2008)

This grounded theory study was designed to help understand how students aged between 16 and 19 in further education react to being diagnosed with dyslexia, how this informs their understanding of self and identity, and what impact this has on subsequent outcomes. Twenty respondents took part in individual semi structured interviews, with ten of these also participating in a focus group. All of the participants had been diagnosed with dyslexia within the previous year.

The in-depth interviews yielded rich data which led the authors to propose a 'resistance and accommodation model' which they suggest could be tested through future research. They suggest that resistance is characterised by an "unwillingness or inability to accept and integrate the status of dyslexia into the individual's notion of self" (Armstrong and Humphrey 2008 p 98) whilst accommodation was characterised by the ability to integrate the new diagnosis into their notion of self. This was demonstrated through statements such as "I might have dyslexia but it doesn't like define who you are…." The authors felt that this was likely to be influenced by the age at first diagnosis, as they suggest that identity becomes more fixed during adolescence as the individual progresses into early adulthood.

The issues identified in terms of the relationship between dyslexia and self-esteem, self-identity and ultimately how the individual responds to the diagnosis; with the potential for learned helplessness, provided a valuable insight into this age group. The proposition that this may be even more critical in adults was of particular interest as it might have accounted for students choosing not to be formally tested.

2.4.9 Glazzard (2010)

This study was designed to investigate factors which affect the self-esteem of learners with dyslexia and in particular to explore the impact of the diagnosis. It explored the views of 9 secondary school pupils aged 14-15 through the use of individual semi structured interviews.

They found that the most significant factor which had contributed to self-esteem was a positive diagnosis and ownership of the 'label' and that this was far more important than other factors such as the effect of the teacher, peers or relatives. The majority of students said their self-esteem had increased after the diagnosis as it gave them a

reason for their difficulties. Pupils saw the diagnosis as a 'turning point' and pivotal in shaping their identity and self-esteem. A significant number of the pupils (89%) had made comparisons between themselves and peers prior to their diagnosis. In one case this had led to the pupil 'giving up' and refusing to co-operate with teacher's requests.

This study was valuable as it highlighted the importance of the diagnosis and recognised this as a key turning point; however, it considered secondary school age children rather than the age group of interest. It was very small scale and the fact that it was conducted in an area of social deprivation must be viewed as a potentially compounding variable. There were other limitations in that the study did not specifically explore whether the pupils had wanted to be tested for dyslexia, nor how those found not to be dyslexic felt.

2.5 Post analysis review of literature

Following analysis of the data it was evident that some of the areas I had considered superficially[26] when planning the research were indeed relevant. These included the type of difficulties characteristic of dyslexia and information relating to how adult learners behave. In addition, the ongoing review of emerging literature had revealed a thesis by Ryder completed in 2016 but embargoed until August 2017. This focussed specifically on the assessment process and attitudes towards it. Each of these areas will now be discussed.

2.5.1 Pattern of difficulties associated with dyslexia

In chapter 1 the nebulous nature of dyslexia was outlined along with the challenges that this presents when seeking to identify those affected by the condition. Indeed there has been ongoing debate regarding the core characteristics of dyslexia for almost 50 years now. That said, there are certain areas that are commonly accepted as being affected to a greater or lesser degree and these were all considered. As previously stated it is not within the scope of this thesis to examine these in great depth, but rather to highlight how the condition may manifest. This helped to contextualise the views expressed by students which are shared in later chapters. Central to the debate was the impact of poor phonological skills and how these impact on aspects of literacy including reading, writing and spelling, (Stanovich 1988; Vellutino 1979; Snowling 2000; Pennington and Lefly 2001; Vellutino et al 2004; Hulme and Snowling 2009; Snowling et al 2012).

[26] This was deliberate in order that detailed reading did not inadvertently bias either data collection or interpretation of the findings.

2.5.1.1 Spelling and phonological awareness

The relationship between poor phonological awareness, which is viewed as a core deficit in dyslexia (Snowling 2000; Shaywitz 2003; Vellutino et al 2004), and difficulties with spelling is well established. Phonological awareness can be described as the ability to sound out words, which in turn can impact on the individual's ability to both read and spell. The degree of difficulty that an individual will experience however is ultimately influenced by other aspects of their personal profile. Rakhlin et al (2013) in a study of Russian speaking children discovered that children with unimpaired pseudoword repetition and rapid automatized naming skills were able to overcome weaknesses in spoken language and phoneme awareness; thereby allowing them to achieve a similar level of literacy as their peer group. This highlighted that individuals with relative strengths in other aspects of language development can potentially overcome difficulties with spelling. Implicit within this is the concept of automaticity (Nicolson and Fawcett 1990) whereby repeated practice under consistent conditions enables individuals to master key skills such as walking, arithmetic and in this case spelling. Frequent repetition therefore allows students to successfully build their vocabulary bank. Although Nicolson and Fawcett established that it will take a dyslexic learner longer to reach the point of automaticity, than their non-dyslexic peers; they assert that once achieved dyslexic learners will maintain competency the same as everyone else.

Whilst the lay public are unlikely to have encountered the concept of phonological processing or automaticity, the association between poor spelling and dyslexia is well known. Indeed, for many the two are seen as synonymous, although this may not be entirely accurate. The seminal research on this area was published over two decades ago by Pennington et al (1986, 1987) and Lefly and Pennington (1991). Collectively these studies established that whilst phonological coding skills were often poor in individuals with dyslexia, their orthographic coding skills often exceed those of spelling-age controls. It is important to acknowledge that these studies all considered achievement by compensated dyslexic adults, who were able to spell significantly better than the non-compensated controls. However, this is likely to be indicative of students within HE as these students will have had to have developed good compensation in-order to firstly meet the entry criteria to get into university, and then to survive on their course. More recent research by Kemp et al (2009) examined high functioning dyslexic adults at university and found that they frequently achieved age- appropriate spelling scores. Although the dyslexic group in their study made more mistakes when spelling both real and pseudo-words than the control group, who were matched for vocabulary and intelligence; both fell within the broad expectations of their age/ IQ.

In addition to this ability to develop the skill, the potential for adults to find other ways of compensating cannot be underestimated. Working with students with dyslexia I was aware that avoidance is often employed as a very successful strategy. Students select words that they can spell and avoid those they find more challenging, unless they have access to spell check facilities. How prevalent this is, is not fully understood however. Published studies have previously measured spelling achievement against a standardised list, and do not acknowledge other strategies that student's might employ. The ability to find ways of overcoming difficulties was highlighted in a recent study exploring writing skills of dyslexic learners at university. Carter and Sellman (2013) categorised students as adopting a 'solution-finding approach' or 'problematizing approach' and cited an example of a student saying "*It's only spelling, I can sort that out afterwards*".

Despite this, other studies have indicated that spelling problems are a prominent marker of dyslexia in adults (Nergard-Nilssen and Hulme 2014) and as such the assessment of spelling remains a key part of the diagnostic process.

2.5.1.2 Reading

The notion of 'reading for a degree' emphasises the fact that for university students the ability to read extensively is a fundamental skill required to succeed. It is acknowledged that other core cognitive domains rely on good reading skills including expressive vocabulary (Uttl 2002) verbal fluency (Johnson et al 2006) and other types of executive functioning (see section 2.5.1.4). Numerous authors have identified that despite impressive success stories that many students struggle to adapt to the demands of higher level study, (Mortimore and Crozier 2006; Mapou 2008; Kemp et al 2009; Collinson and Penketh 2010). Difficulties with reading are likely to be further compounded by issues such as new terminology, abstract technical language and the requirement to decipher long syntactically complex sentences, (Pedersen et al 2016). Despite this, the presence of often well-developed compensatory strategies, including the potential to re-read text when not under test conditions, means that the majority of students within university are able to cope with the demands of their course.

Literature which discusses reading abilities of individuals with dyslexia frequently focusses on performance against diagnostic indicators, (Snowling et al 1996, 1997; Simmons and Singleton 2000). These studies have highlighted that dyslexic students find it harder to read 'non-words' which are designed to test their ability to decode symbols. One example of this is the Wide Range Achievement Test – Revised (WRAT-R) which is an age standardised test of single word reading and spelling frequently used with a diagnostic assessment. Although it could be argued that the inability to read

nonsense words such as 'twamket' and 'bobiludded[27]' is relevant when making a diagnosis, it becomes less so in the real world. It was therefore highly likely that students would not recognise this as a problem area as they had never been called upon to do it.

Other areas of potential difficulty which adults with dyslexia frequently experience are reading slower than their peers, needing to re-read to increase their comprehension and a dislike of reading aloud[28] (Miles 1993; Everatt 1997; Simmons and Singleton 2000). These are also easy to rationalise and in the case of reading aloud avoid, which again means that students might not have acknowledged them as an area of difficulty.

Finally, functional brain-imaging studies have revealed that the 'word-form' area contained within the left hemisphere of the brain develops as good readers grow older, whereas in dyslexic individuals an area slightly posterior and medial assumes a more important role, (Shaywitz and Shaywitz 2007). This in turn helps adults to draw on their memory in the form of word recognition to assist their reading, which if well-developed can partially 'hide' any deficit. This was illustrated in a study by Folkmann Pedersen et al (2016) examining reading comprehension in university students. Their findings revealed that the dyslexic students frequently focussed their attention on one subcomponent of reading, for example decoding or comprehension, as they found engaging with both simultaneously too demanding. As a group the 16 dyslexic students they studied performed less well on most measures than the 16 non- dyslexic control group, although there were notable variations between individuals.

2.5.1.3 Working memory

The concept of working memory which is responsible for the short-term storage of incoming auditory, visual and motor input; and the subsequent transfer and encoding of that information within the long term memory is another area known to be frequently compromised in dyslexia, (Chasty and Friel 1991; Miles 1993; Berninger, 2004). This is likely to impact on the speed at which students are able to process information, including a reduced ability to keep track of what is said in a conversation, or follow what is presented in a lecture. Efficient working memory allows us to link new concepts with prior knowledge, whilst being exposed to additional incoming data. University education is therefore highly dependent on students having a good working memory, (McLoughlin et al 1994; Pollock and Waller 1994; Reid and Kirk, 2001; Berninger, 2004).

[27] These are examples of non-words contained within the WRAT-R
[28] Difficulties with phonological processing mean that words are often mispronounced leading to embarrassment.

2.5.1.4 Executive functioning

Within university the higher order cognitive abilities often referred to as Executive Functioning (EF) are essential. These include activities such as planning, problem solving, sequencing and self-monitoring, to name but a few. These skills draw heavily on many of the areas likely to be affected by dyslexia including working memory and automatization and are therefore likely to impact on dyslexic students within higher education. Studies by Sesma et al (2009); Booth et al (2010); Leather et al (2011) and Smith-Spark et al (2016a, 2016b, 2016c) have all confirmed that students with dyslexia experience these difficulties more than their non-dyslexic peers. They highlight the fact at as the task gets harder a higher level of EF is required, but that this may not be attainable. It is particularly pertinent that these skills, which are critical to success, are not recognised by the lay public as being part of dyslexia and therefore unlikely to prompt a student to consider a dyslexia assessment.

2.5.1.5 Writing

Perhaps the greatest challenge that university students face is that of academic writing. Price (2001, 2003) highlighted the frequency with which students cite this component of their studies as being highly stressful. This is not surprising when you consider the wide range of academic skills it involves. Those interested primarily in school age children have previously recognised the impact of spelling performance on writing, (Chomsky 1986, Moseley 1989). In a more recent study Joshi and Carreker (2009) demonstrated that low confidence in spelling greatly inhibits a child's creative writing, but within HE the task is more complex. For most students the task moves away from creative writing to become a recursive activity which requires both the ability to synthesise information and manipulate different features of language, (Bereiter and Scardamalia 1987; Grabe and Kaplan 1996, Farmer et al 2001; Hatcher 2001; Singleton and Aisbitt 2001; Farmer et al 2002; Price 2003; Price and Skinner 2007; Carter and Sellman 2013). This includes organisation of thoughts to demonstrate comprehension; memory and sequencing to ensure a logical flow; the ability to recognise and portray the most salient features; grammar; syntax and a good grasp of vocabulary including awareness of homophones etc. These are challenging to all students but, due to the underlying pattern of difficulties previously discussed, they create an additional burden to students with dyslexia. The impact of this can be profound, particularly if the dyslexic difficulties are unrecognised and the student does not have access to specialist support.

2.5.2 Help seeking behaviours

Although literature on help seeking behaviours had been considered briefly as part of the initial literature review, it was revisited in the post analysis phase. Most of this body of literature is centred on uptake of counselling and/or other mental health provision but there are interesting parallels. As we are reminded by Wilson et al (2005) if we wish to increase engagement with counselling services, then we need to fully understand help seeking intentions and behaviours.

It is widely acknowledged that young people are more likely to access informal help from friends and family than from professional sources, (Offer et al 1991; Boldero and Fallon 1995). Recognition of this has led to a wealth of studies aimed at exploring attitude-behaviour correlates, with perhaps the most significant being the 'Theory of Planned Behaviour [TPB] developed by Ajzen (1991, 2002). In this he established that help seeking intentions are likely to be closely related to actual behaviour, where 'intentions' have since been defined as a "conscious plan or decision to exert effort to perform the behaviour", (Conner and Norman 1996 p12). Due to the importance of the Theory of Planned Behaviour this was examined in depth and is summarised in section 2.5.4.

Despite this clear definition of intent it is noticeable that many researchers subsequently use the terms 'willingness' and 'intention' interchangeably. Wilson et al (2005) propose that whilst these terms are clearly connected they are not the same. They also draw attention to the limited nature of prior research with many studies utilising a standard yes/no response that does little to shed light on the respondents' degree of intentionality. Where likert scales have been used to indicate 'extremely likely' versus 'extremely unlikely', the studies tended to only focus on one source of support.

In an attempt to address this Wilson et al (2005) created the 'General Help-Seeking Questionnaire' [GHSQ], based on a matrix format, which can be modified to explore different problem types and sources of help. They went on to use this in conjunction with several other established tools, to investigate two hundred and eighteen 12-19 year olds intention to seek help for personal-emotional or suicidal problems. The students were followed up 3 weeks later to establish how often this intention had resulted in action. Wilson et al's findings were consistent with those of Ajzen (1991) and demonstrated a significant correlation between help-seeking intention and going on to seek help.

More recent studies exploring uptake of support services in relation to mental health problems have demonstrated an upward trend. Hunt and Eisenberg (2010), reviewing college students in the USA, noted an increase from 19% accessing support in the early

1980's to 25% a decade later, before a further steep rise to 41% by the early 2000's. What this is attributed to is less clear. In an attempt to understand the barriers and facilitators that contribute to mental health service use Hom et al (2015) reviewed 146 papers on the topic. They established that 29.5% of those with past year suicide intention plans, and/or attempts, had accessed mental health services. Facilitators to accessing support were seen as an increase in mental health literacy, more positive views of the services on offer and encouragement from family or friends. Interestingly the barriers they identified mirrored many of those found in my study which are discussed further in chapter five.

2.5.3 Attribution Theory

Fundamental to any exploration of help seeking behaviour is an understanding of what might have triggered this and how the individual responds. Motivational psychologists have been studying this for over 100 years since the early work of authors such as Thorndike (1911). His '*Law of Effect'* highlighted that behaviours which have previously been rewarded are likely to be repeated, whereas those viewed less positively will be avoided. Over the subsequent 40 years understanding grew. 'D*rive theory'* proposed that behaviour is determined by drive x habit, but recognised that it is also influenced by incentives, (Hull 1943; Spence 1956). The importance of need or motive also emerged from work by authors such as Lewin (1938) and Atkinson (1957) which whilst overlapping with the notion of drive, offered a subtly different perspective.

Moving this in to an educational arena, attention turned towards perceived causes of success or failure, a concept later referred to as attribution theory. Fritz Heider (1958) is widely acknowledged as the originator of this work and his proposal that the end result depends on factors 'within the person' and those 'within the environment' set the scene. Rotter (1966) built on these ideas when he introduced the notion of 'locus of control' and although these theories have been tested extensively since, and refined, the original concepts are still seen as key.

Attribution theory aims to establish why an event has occurred in an attempt to either avoid or replicate it in the future. In the context of university students, exposure to stressful events such as failing an assignment or getting a lower mark than expected are likely to lead to an internal 'investigation' of potential causes. In his early work Heider (1958) identified three potential factors: *ability*, *effort* and degree of *difficulty*; with *luck* being added by Weiner et al (1971). Of these, two factors are considered to be internal and two external as depicted in Figure 2.

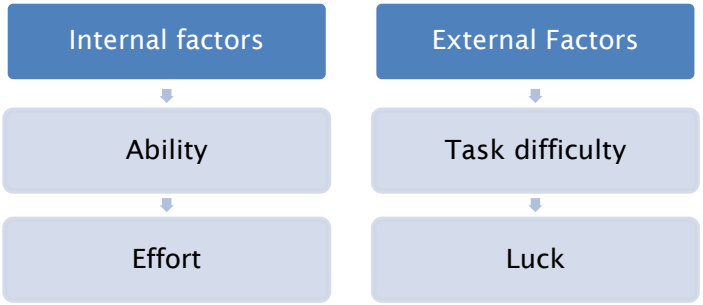


Figure 2 : Factors influencing success (Weiner et al 1971)

The importance of a factor such as luck, for example a coin toss, where no degree of ability or effort will influence the outcome is necessary to complete the picture but has less relevance when considering an educational context. Here success is most commonly ascribed to high ability and hard work, with low ability and not trying being blamed for poor results, (Weiner 1985). What the coin toss does illustrate however, is the notion of controllability, as luck is a factor totally outside of any control. From this it can be seen that perceived causes of success or failure have three properties *locus*, *stability* and *controllability*. Factors such as ability are likely to remain relatively stable and some would consider task difficulty to be the same. Certainly, within the arena of experimental psychology the potential to construct studies where the task applied does not intensify are feasible. When this is considered in relation to university students the opposite applies as students move through the varying academic levels associated with each year of an undergraduate degree; or of post graduate studies. The final attribution-based theory of interpersonal motivation developed by Weiner (2010) is shown in Figure 3.

Weiner (1985) himself acknowledges that since a peak in motivational psychology research between 1930 and 1950 that the field has become less active. He attributes this to an acknowledgement that the experiments, which provided an empirical foundation for the theories, have struggled to demonstrate true reliability. Whilst this may be pivotal for those attempting to demonstrate mathematical representation, and thereby predictions, it could be considered less important if the goal is more to advance understanding.

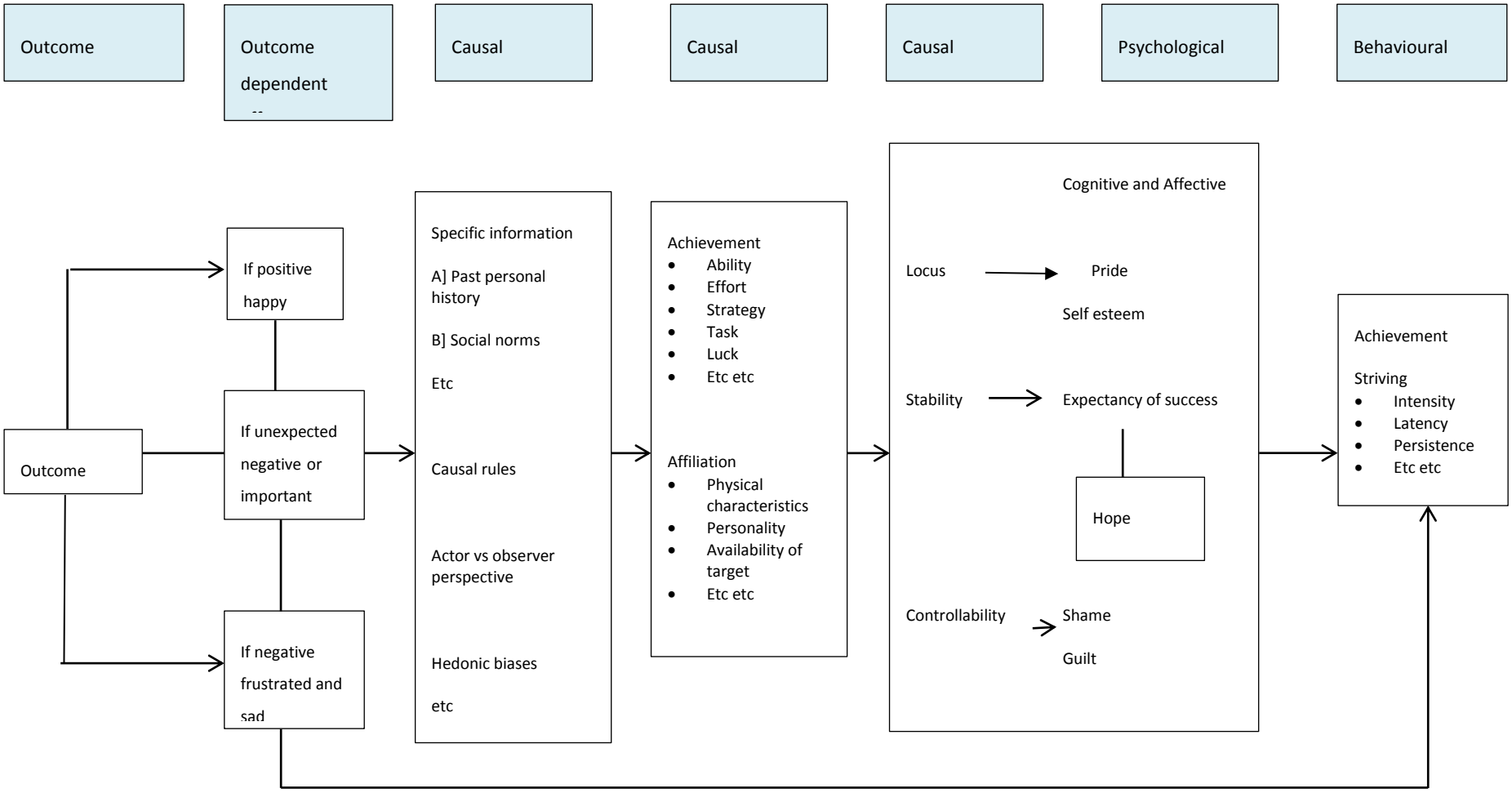


Figure 3 : Attribution based theory of motivation (Weiner 2010)

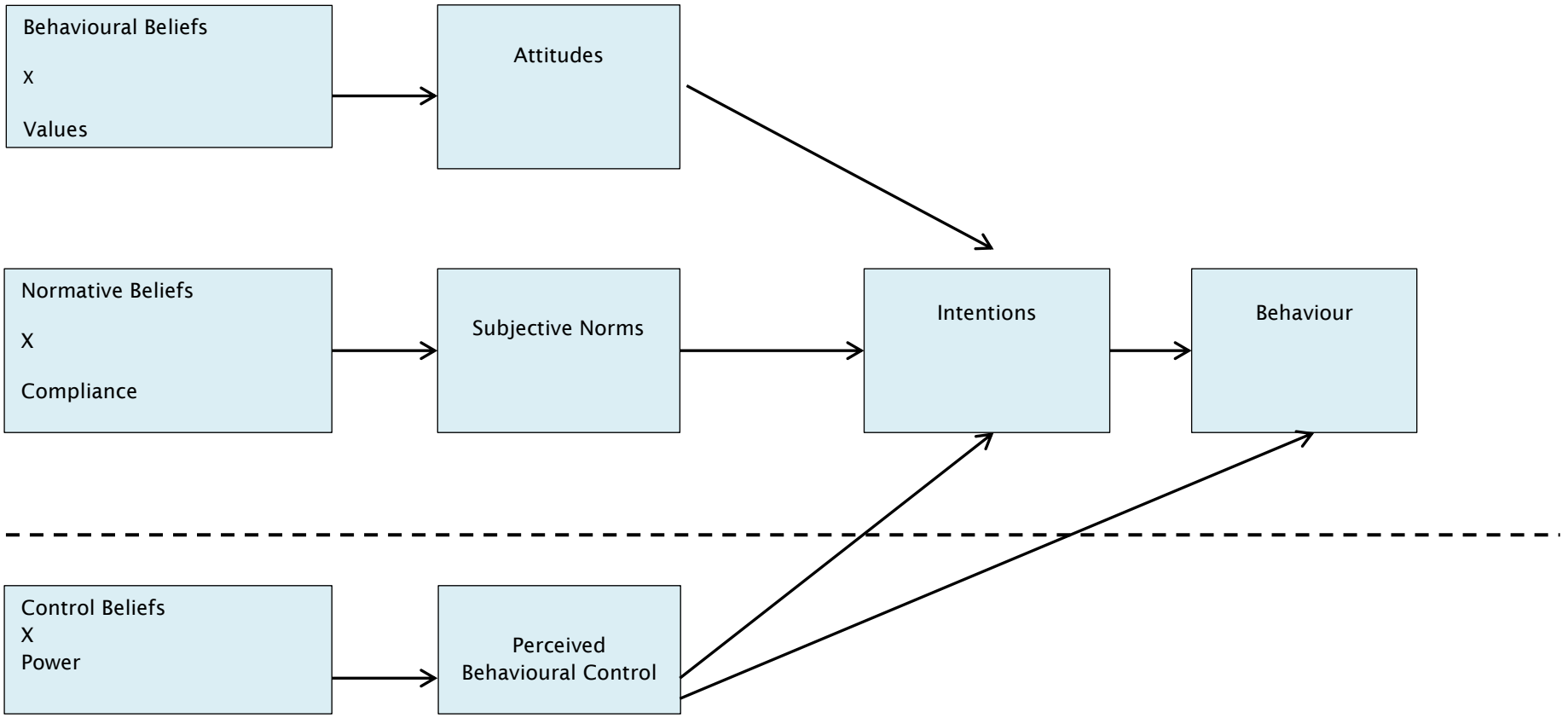
Weiner (1985, 2010) used the theory to explain different scenarios. In the first instance student A fails an important exam and is unhappy. This normally leads to a search for causality, although Gendolla and Koller (2001) suggest that this is not always the case. They propose that the search is triggered when the result is either unexpected or if the goal was particularly important. As Weiner's suggested scenario identifies that it is an important exam, it is likely that the student will look for causes. If they have failed before, even though they study hard, it is likely to give rise to a feeling that their failure was due to a lack of aptitude or ability. As aptitude is internal, stable and uncontrollable this often leads to a lowering of self-esteem. Expectancy of future success is consequently reduced with potential behavioural consequences for example that the student may drop out of their studies. In contrast if student B also fails the exam, they too will initially be unhappy. However, this student knows that they have previously been successful and acknowledges that they were out at a party the night before the exam. In this instance the lack of success is attributed to insufficient effort, which is within their control, and leads to increased effort for the resit attempt.

Despite being widely quoted Weiner's theory is not without its critics. The potential for low expectancy of success to generate a high level of effort has also been suggested, (Locke and Latham 1990). Similarly, if the student perceives a lack of success as something outside of their control they may not look for solutions, (Rotter 1966). Finally, Weiner himself acknowledged that most causal dimensions are derived by attribution theorists rather than their subjects. He saw as a limitation, and advocated the need for further research. This is in part addressed through my study where it was evident that students were attaching causal ascriptions when telling their stories. These are shared in chapter five when Attribution Theory will be revisited.

2.5.4 Theory of Planned Behaviour

Having identified earlier that intention to seek help was an important pre-determinant of subsequent action, it was necessary to explore this in more depth. The original work, the '*Theory of Reasoned Action*' (Fishbein 1967, Ajzen and Fishbein 1980) sought to create a theoretical model for the prediction of behavioural intentions and corresponding behaviour. The basic premise was that the immediate antecedent to any behaviour is the intention to perform that behaviour, with a direct correlation between strength of intention and likelihood that the behaviour will follow. Two independent determinants of intention were established. On a personal level, the individuals '*attitude towards the behaviour*' is significant, in terms of whether they view it as favourable or unfavourable. This may in part be determined by the '*subjective norm'*, which relates to any social

pressure to either perform the behaviour or not to. The theory also identifies antecedents to both which they label as '*behavioural beliefs*' and '*normative beliefs'*. The behavioural beliefs consider an evaluation of potential outcome which may magnify or reduce desirability. Finally, as normative beliefs are based upon potential approval or disapproval from others,



Note : Constructs and relationships displayed above the broken line represent the original Theory of Reasoned Action (Ajzen and Fishbein 1980). With the incorporation of those below the broken line the diagram depicts the Theory of Planned Behaviour (Ajzen and Madden 1986)

Figure 4: Theory of Planned Behaviour

the individual's motivation to seek this endorsement is also factored in. Figure 4 provides a diagrammatic representation of the original Theory of Reasoned Action; along with the additional concepts subsequently incorporated into the Theory of Planned Behaviour, (Ajzen and Fishbein 1969, 1980; Ajzen and Madden 1986; Ajzen 1991; Fishbein 1967).

As their thinking developed the concept of whether or not the individual had '*behavioural control'*, and to what extent this was under their volition was added. Complete control can be said to only exist when the decision to perform a specific behaviour can be decided by the individual at will. When they need to be provided with an opportunity, or if it is contingent on possession of resources, including time and/or money it becomes less under volitional control.

Experimental psychologists continue to test these theories in an attempt to predict behaviour. The impact of behavioural control has been found to be significant and led to the Theory of Planned Behaviour replacing its predecessor by adding an extra dimension, (Ajzen and Madden 1986). From the perspective of my study however the intention was to uncover factors which influenced the students, rather than to predict behaviour. As such the literature on this area provided a useful theoretical perspective that helped when analysing data and making recommendations for future practice. These areas will be discussed further in chapters five and six.

2.5.5 Adult learners

Literature on adult learners and factors which affect their learning was also revisited. This was an area which I was very familiar with in my role as a lecturer within HE but which needed to be reconsidered in light of my findings. Interest in this field originated from a paper by the eminent American Philosopher, John Dewey, published in 1896, (Hickman et al 2009). In it he described "The Reflex Arc Concept in Psychology" launching ongoing exploration into how humans learn from their experience. The original reflex arc concept described the neural pathway by which humans protect themselves from a harmful external impulse, (Marieb 2015). Although initially physiologically based, Dewey reconceptualised this as a principle of self-protection but stressed the importance of the context in which the situation occurs. He recognised that the learner is not an inactive recipient of the experience but instead brings with them past experiences through which the learning, or truth, is constructed as a by-product of solving problems.

The student-centred notion of learning was then further developed by Carl Rogers with the introduction of key hypotheses on areas including 'self-initiation' of learning and the importance of psychological 'safety'. Fundamental to both is the individual's ability to maintain their structure of 'self' and he talks about the role of denial in helping to maintain this sense of personal identity, (Rogers1951, 1969).

In recent years the most influential author in the field has been Malcolm Knowles. His concept of andragogy as a means to differentiate between how adults learn, as opposed to children, is now well established. It draws together the work of Dewey, Rogers and other respected authors including Freire (1972) and was developed as a conceptual model by Knowles, Holton and Swanson (2011).

2.5.6 Lecturer understanding of dyslexia

Several studies have attempted to establish how much academic staff know about dyslexia and how equipped they feel to recognise dyslexic type difficulties and support students. Most are relatively small scale conducted either within one discipline or one HEI, but despite this their findings are compelling. They echo views of staff within the pre 16 sector and the unanimous view is that preparation is inadequate and that more awareness training is required, (Farmer et al 2002; Mortimore and Crozier 2006; Griffin and Pollak 2009, Madriaga et al 2010; Cameron and Numkoosing 2011; Mortimore 2013; Ryder 2016).

In addition to concerns that staff may not have enough knowledge, there is evidence that misconceptions exist. Washburn et al (2014) administered a questionnaire including a range of 'myths' about dyslexia to 101 pre-service teachers from the USA and a further 70 from the UK. It included accurate statements, those that were definitely false and several that could be considered contentious. Although it might have been better to have only included areas where there was an evidence base to verify their accuracy, the research confirmed that public misconceptions were perpetuated by the pre-service teachers. One example of this was a belief that dyslexic children will reverse their b's and d's. Although this is a common misconception Adams (1990) identified letter reversal as something that frequently occurs in emerging, or beginning, readers and writers. As such it is likely to lead to misidentification in children, although the situation is less clear in adults. For many of the 'myths' included in the Washburn et al study evidence confirming or refuting their accuracy differs across children and adults. There would therefore be merit in adapting the questionnaire in light of research focussing on dyslexic adults and replicating this study across university lecturers.

2.5.7 Ryder (2016)

This PhD thesis examined how processes involved in the identification of dyslexia within Higher Education were viewed by those involved in conducting them, by students and by academic staff. The impetus for the study arose from a concern that with a widening participation agenda and increasing awareness of the multidimensional nature of dyslexia that the process may be becoming less rigorous. Ryder submitted that this was leading to dyslexia being identified almost indiscriminately and she began to question the reliability, and by inference validity, of the assessment process.

The research addressed 12 research questions embracing 4 main areas of interest :

1. Research and Practice: dyslexia and the assessment process

2. Dyslexia and Disability

3. Equity issues and reasonable adjustments

4. Inclusive practices

In total 118 assessors completed the questionnaire of whom 42 were Educational Psychologists and 76 Specialist Dyslexia Teachers. The sample also included 164 lecturers drawn from across 12 HEI's including an equal mix of pre and post 1992 institutions. Finally, 146 dyslexic and 155 non-dyslexic students participated. The principal method of data collection was through a series of questionnaire targeted at the different groups. Unfortunately, not all topics were asked of each group and whilst some areas would have not have been feasible for everyone to answer it did leave some gaps in understanding.

In addition to the questionnaires, 8 assessors were subsequently followed up using 1:1 interviews. Why this did not extend to the lecturer and student groups is not shared, although the researcher was herself an assessor for many years. In light of her motivation for conducting the study it is likely that their perspective was the main area of interest.

Of the questions asked, 3 initially appeared to be relevant to my study, although on closer scrutiny responses relating to how dyslexic students felt about the assessment process (Q1f) and their attitude towards dyslexic and disabled identities (Q2b) produced quite limited insight. When questioned about the assessment process students commented mainly on the explanations provided both before the assessment itself and in relation to the findings, which overall they felt were presented in a way they

understood (60%). Of the remainder, 24% felt that they had had them partially explained, 3% said not at all and 10% could not remember. Ryder also asked the dyslexic students if they understood what dyslexia was, revealing that although 60% were confident that they did; 36% stated that they only partially understood whilst 4% did not. The same question was not asked of the non-dyslexic students, which whilst not the focus of Ryder's study would have been of interest when considering students views on being tested. Responses to the questions on dyslexic and disabled identities revealed the usual variation in views as to whether a 'label' was perceived as helpful or not; along with fears by some, but not all, surrounding disclosure.

The other area explored by Ryder which was particularly pertinent to my study surrounded HE lecturers understanding of dyslexia. Literature surrounding this has been explored in section 2.5.6. and findings from Ryder echoed what was previously known. Of the 164 lectures surveyed only 40% recalled having been offered dyslexia awareness training by their institution. Despite this 66% of lecturers in post 1992 institutions and 39% in pre 1992 felt confident to recognise if their students exhibited dyslexic type difficulties.

Table 9 : Main strengths and limitations of Ryder (2016)

Strengths
• Views of assessors, lecturers and both dyslexic/non-dyslexic students were sought • Research addressed a wide range of research questions providing insight into a variety of perspectives • Multi-centre study including pre and post 1992 institutions and students across a range of disciplines • Large sample size across all groups (for this type of research)
Limitations
• The non-dyslexic students were not asked about their understanding of dyslexia which may have been useful • Although the questionnaire provided an opportunity to elaborate on responses if desired the questions were predominantly likert scale in nature or other closed question formats. This may have impacted on the richness of data collected. • The thesis contains a wide variety of quotes demonstrating that many respondents chose to elaborate. It is impossible to judge what percentage did so however as the quotes do not include any identification codes, it is therefore possible that these only represent a small selection of respondents.

The work by Ryder made a valuable contribution to the knowledge base, particularly in relation to judging the rigour of the assessment process itself. The lack of consensus regarding a definition, or even agreement on core deficits associated with dyslexia was

also reinforced. Due to the targeted approach, with questions only being asked of certain groups of respondents, it left areas unanswered however. Many of these are addressed through my study and the two will studies complement each other by offering different perspectives surrounding the decision to be assessed, and the subsequent process.

2.6 Chapter summary

The literature review confirmed the absence of any published research on the topic of interest. Although studies did exist which touched on how students felt about being tested for dyslexia, these had previously focussed on the emotional response to the diagnosis, or lack of. The gap in the literature therefore endorsed the need to undertake this research to develop an understanding of factors which influenced the students. The overall research aim remained as stated in chapter 1 but the review of literature helped shape eleven subsidiary questions which helped address the deficit in knowledge.

Aim

> *To explore factors which influence university students' decisions whether or not to be tested for dyslexia*

Subsidiary research questions

1. How many respondents, who have not previously been tested, have considered having a dyslexia assessment?
2. Are there differences in the demographics of students who have considered being assessed for dyslexia in relation to level of programme, year of study and the faculty they are studying in?
3. Do differences exist between faculties within the university in relation to how students proceed?
4. What factors lead a student to consider being assessed for dyslexia?
5. What factors encourage students to go forward and be assessed for dyslexia?
6. What factors prevent students going forward to be assessed for dyslexia?
7. Do differences exist between faculties within the university in in relation to the factors which influence student's decision making?
8. How much do students understand about the nature of dyslexia?
9. Does the student's perception of dyslexia influence their decision?
10. What part do others play in student's decision making?
11. Do students have adequate information about how and where to go to request an assessment?

The next chapter of this thesis articulates the research design developed to answer these questions.

Chapter 3: Research methodology and methods

This chapter provides an overview of the research design; articulating, and in places defending, decisions made during both planning and execution. The degree of detail shared when writing up a thesis is open to debate. Whilst not designed to be a 'research methods essay' it does need to furnish readers with sufficient information to not only follow, and if required replicate the study, but also to appraise it for rigour. To facilitate this, I have therefore chosen to include a detailed account of certain aspects within the main text.

The chapter begins with a brief exploration of research paradigms to provide a rationale for selection of a two-phase exploratory qualitative design. This is followed by a critical exploration of Mixed Methods research. The original intention had been to use this approach but as the research progressed I regularly questioned if I was really adhering to its underpinning philosophical beliefs. Although aspects of mixed methods research informed this study, the amount that I was deviating from the purist view led me to reclassify it as exploratory qualitative research part way through.

The remainder of the chapter provides a critical review of the research, outlining initial decisions and how on occasions these evolved as the study progressed. This honoured the concept of reflexivity, practiced throughout the research, and shared within this chapter. The impact of choices made, particularly where these have created limitations to the research are critically evaluated and where appropriate suggestions identified as to how it could have been done differently. By doing this I have demonstrated both what I have learnt as an researcher, and have been able to provide guidance for others undertaking similar research.

3.1 Research Purpose

The literature review, discussed in chapter 2, established that no previous research had been conducted on the topic, confirming the need for the study. It also meant that I needed to create a research design to address the deficit and construct suitable data collection tools. As the ultimate goal of the research was to generate understanding in order to influence future policy and thereby improve the student experience, three main areas of enquiry were identified, (see Figure 5). These were important to both scope and quantify the scale of the problem, as it was suspected that students were thinking about

being tested but not going forward; and to explore reasons why. It was therefore imperative that the research was designed to address all of these areas.

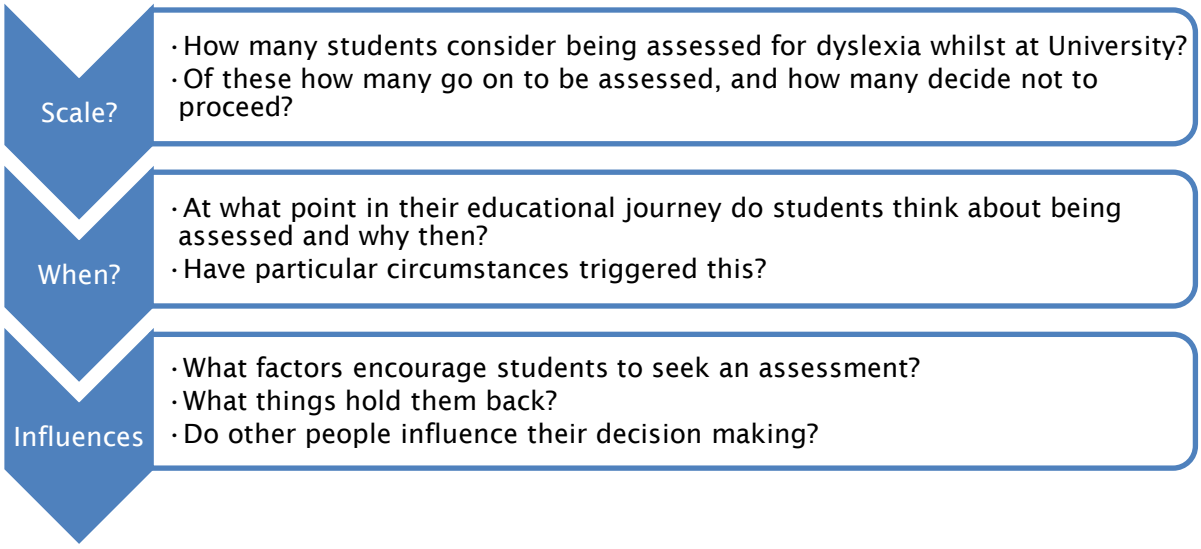


Figure 5 : Areas to address within the research

3.2 Research design - philosophical considerations

Planning the research design began with an exploration of contrasting paradigms to establish which had the most potential to answer the research questions outlined in section 2.6. As eight of the eleven questions sought to establish reasons, I began by examining naturalistic methodologies. The principle purpose of naturalistic inquiry is to enable the researcher to formulate sound explanations for social phenomena through which they are better positioned to predict and control them, (Ritchie and Lewis 2003; Polit and Beck 2004; Greene 2007). Social Constructivists in particular seek to develop understanding by examining individual or collective reconstructions, (Lincoln et al 2011). This was in keeping with the overall research aim as it facilitated understanding of 'why' students felt and behaved[29] in a certain way. Constructivists acknowledge that multiple realities exist however and that these are dependent on the individual, (Guba 1990). It was therefore important to select a methodology and methods which embraced this and valued diversity whilst recognising consensus.

A frequent criticism of naturalistic methodologies is that their favoured method of data collection invariably limits the sample size, (Polit and Beck 2004). With a primary objective to gain insight and understanding, researchers regularly select observation

[29] This relates to their choice of whether or not to request a dyslexia assessment.

and/or in-depth interviews as their preferred method. Whilst this does produce rich data, the restricted sample that can be studied in this way will inevitably impact potential transferability of the findings. With this in mind, and in order to provide information about the scale of the issue, I began to explore literature on mixed methods research, (Tashakkori and Teddlie 2003; Greene 2007; Teddlie and Tashakkori 2009; Creswell and Plano Clark 2011).

This analysis resulted in a period of critical deliberation as to whether mixed methods were the most appropriate for my study and what this approach could uniquely offer. During the 1990's a philosophical debate had taken place, questioning the growing trend at that time for researchers to 'modify' established research approaches. Whilst some authors including Corner (1991) advocated a flexible approach, acknowledging that studies often failed to adhere to the purist approach of their chosen paradigm, others strongly opposed this view. Baker et al (1992) maintained at that time that it was essential that the underpinning philosophical assumptions of a research design must be retained and reflected; a view later echoed by Koch (1995). The argument seemed to focus on whether the modification was deliberate and as a result of critical development of the philosophical thinking; or as Cohen and Omery (1994) controversially suggested more due to the researcher's lack of understanding. It was therefore essential that I spent time examining the philosophical basis that underpins mixed methodology to be able to judge if it was the most appropriate design.

3.3 Critical exploration of Mixed Methods research

In recent years mixed methods research has been proposed as an alternative, or third paradigm (Burke-Johnson and Onwuegbuzie 2004; Dures et al 2011). Historically the ontological and epistemological bases of positivist research and naturalistic enquiry have been viewed as being quite polarised and therefore incompatible with each other (Dures et al 2011). Mixed methods research therefore evolved as a viable alternative; with a set of its own philosophical values which make it fundamentally different to the pre-existing paradigms.

In 1989 Greene, Caracelli and Graham identified five 'purposes' for conducting mixed method research which are still viewed as the guiding principles today, (Greene et al 1989). They advocated selecting a mixed method approach for purposes of *triangulation, complementarity*, *development*, *initiation* or *expansion.*

Traditionally researchers have often employed different methods of data collection, a concept known as *triangulation*. This looks for confirmation that ideas emerging from

one form of data collection are replicated through other methods and thereby strengthens the assumptions drawn. Mixed methods research is philosophically different however in that whilst it values these convergent themes, it is particularly interested in what Cook (1985) described as the "empirical puzzles". These centre around identifying areas of 'divergence', 'dissonance' and 'difference' and result in mixed methods research being more than a combination of data collection methods.

The second purpose – for *complementarity*, is one of the most common reasons for selecting mixed methods. Through this the researcher seeks broader, deeper and more comprehensive understanding of complex phenomenon. Mixed method research is an evolutionary process. Results from one method should inform the *development* of subsequent methods including instrument development and sampling methods. This prompted careful consideration as to whether this was either realistic or desirable in the context of my study. It was clear from the outset that a two-phase design would be necessary, as before any in-depth data collection could be attempted it would be necessary to identify the population of interest. The research was designed to focus predominantly on those who had considered being tested but had not gone forward. I therefore needed a strategy to both locate these students and to establish the scale of the issue. However, although comparisons were made between data obtained during phase 1 and 2 from the same participant, the questionnaire design was not dependent on survey data. This was deliberate as I was aware that the window available to follow up students identified in phase 1 was small. If I had designed the questionnaire based on responses from phase 1 the requirement to submit this for secondary ethical approval would have meant that the opportunity for follow up would have been lost. Further detail on sample selection and instrument design is included later in this chapter but the fact that the design could not be evolutionary meant that a mixed methods design in its pure sense would have been impossible.

The fourth purpose of mixed methods research is *initiation*. This is similar to the concept of complementarity and is designed to explore different facets of the phenomenon, namely the empirical puzzles described above. Mixed methods researchers actively seek divergence as a source of new understanding. Examining this principle during the planning stage led to an acknowledgement that whilst I was interested in divergent views that if my main intention was to influence future policy that the consensus opinion was the primary target. Unlike positivist viewpoints that propose that there is a single identifiable reality (Polit and Beck 2004) the ontological basis of naturalistic research acknowledges that multiple viewpoints will exist. However, that does not negate the need to identify areas where strong opinion exists, as defined by a consensus view.

Finally, Greene et al (1989) found that the most common justification for using a mixed method approach is that it enables the researcher to *expand* the scope and range of the study. Different methods are employed to explore different constructs, in each case selecting the preferred approach for the concepts under investigation, (Greene 2007). Within this study a range of constructs had been identified that required exploration, some of which had the potential to be quantified, but this alone did not make it quantitative research. The nature of enquiry did not lend itself to a deductive approach, there was no testable hypothesis and aside from descriptive statistics to summarise data, no desire to infer cause and effect relationships. As such, although the two phases were designed to expand the scope of the study they did not meet the criteria to be defined as mixed methods. Furthermore, in its pure form mixed methods research employs a cross-over approach to analysis. This is where analysis techniques historically employed by one tradition are used when analysing data belonging to the other tradition, for example quantitative analysis techniques used to analyse qualitative data, (Greene 2007; Onwuegbuzie and Combs 2010). The nature of the quantitative data obtained within this study did not enable this type of cross over approach, which further compromised adherence to the underpinning philosophical principles.

Earlier in this chapter it was proposed that mixed methods research has evolved as a 3rd paradigm, with a unique philosophical foundation. It was therefore important to me that if I was going to profess to be conducting mixed methods research that I should respect and adhere to this philosophy. O'Cathain et al (2008) revealed that this is often not the case. In a documentary analysis of 75 health related research bids/final reports[30] claiming to have used a mixed methods approach, it was evident that the majority of papers included had not provided any justification for the use of mixed methods. Nor had they reflected the underpinning philosophy. Furthermore, most authors ignored the integrated approach to data analysis and had instead described each component of the study separately. It is likely that the authors felt that this provided better clarity, and it is not unusual for researchers to follow this approach initially. However, it could be argued that unless they subsequently integrate their findings in the iterative process described by Teddlie and Tashakkori (2009) that the research cannot really be described as mixed methods.

As a result of the period of critical consideration I decided that there were too many areas where I would be deviating from the underpinning philosophy of mixed methods research. The research was therefore reclassified as an exploratory qualitative study.

[30] These were proposals submitted as part of a funding bid and/or final reports submitted to the Department of Health between 1994 and 2004.

3.4 Establishing methodological rigour

All research should be designed and conducted to ensure rigour and provide confidence in the data obtained and conclusions drawn from it. Although the language used by quantitative researchers and those conducting qualitative studies varies, the principles are the same. Researchers need to be confident that their data offers a truthful representation, free from bias[31] and which could be replicated[32] to confirm the results, (Polit and Beck 2004; Mays and Pope 2006).

Quantitative researchers seek to ensure that data is 'valid' by ensuring that data collection instruments measure what they are supposed to measure, and produce consistent (reliable) results, (Polit and Beck 2004). The same principles are embedded within qualitative research when establishing 'credibility', 'dependability', 'confirmability' and 'transferability'. These have been recognised as the 'gold standard' since they were proposed originally by Lincoln and Guba (1985).

During the research design consideration was given to these principles. A summary of how they were interpreted and strategies employed is provided in appendix 3. In addition, where relevant, details are provided later in this chapter when discussing the design and utilisation of different data collection methods.

3.4.1 Reflexivity

One key strategy employed throughout the research was the use of a reflexive approach. Reflexivity has been defined as "thinking critically about what you are doing and why" and is fundamental to qualitative research (Mason 2018 p.xi), Mason goes on to suggest that this can be an uncomfortable process as it requires the researcher to confront and challenge their own assumptions. Implicit within this is the need for the researcher to consider themselves in relation to the social context and participants being researched, (Snape and Spencer 2003; Archer 2007). Done well a reflexive approach will help ensure that the research is both objective and neutral, and therefore that the findings are a truthful representation of the phenomena being studied. Table 10 identifies how reflexivity was incorporated throughout the research.

[31] Qualitative researchers recognise that data collection is inevitably subjective and use reflexivity to acknowledge their own potential biases.
[32] It is acknowledged that unique situations explored through qualitative research may not be able to be replicated exactly; however, researchers still seek to establish dependability.

Table 10 : Reflexive strategies employed within the research

Strategy employed and rationale	Cross reference to main section within thesis
Critical reflection on each phase of the research including: *The design and conduct of phase 1* *The design and conduct of phase 2* *The analysis and coding of data* To acknowledge potential limitations as a result of techniques employed, to identify the root cause and finally to consider implications for future research as a result of learning achieved	Table 14 Table 17 Section 3.10.4
Analysis of potential conflicts of interest as a result of my prior knowledge and faculty role To minimise the impact of these and to increase the transferability of the findings	Section 1.1 Section 3.8.1
Analysis of the potential for students from within health sciences to feel vulnerable through participation in the research To ensure that participant information was designed to reassure those considering participating in the i-survey or interview phase	Section 3.8.2
Use of Analytic Memos (Saldaña 2013) To constantly review potential sources of bias by reviewing decisions made in relation to process such as coding, selection of datum to present etc	Table 19 Appendix 17
Acknowledgement of lone voice As a researcher I had chosen to include examples of lone voice opinion, having judged these to offer a particular insight. It was important that these were transparent and that the reader could see that certain findings were based on an individual participant and may not be representative.	Section 4.4.5

3.5 Overview of the research design

The research was divided into two distinct phases which ran sequentially. The first phase comprised a large scale on-line survey, designed to gather predominantly quantitative data, although it included one open ended qualitative question. From this, participants were selected for phase 2 which consisted of in-depth qualitative interviews to address the remaining research questions. In total 13 interviews were conducted. Table 11 provides an overview of the research and identifies the purpose, research questions addressed and data collection method for each phase.

Table 11 : Overview of the research design

Phase	Purpose	Research questions to be addressed	Methods used
Phase 1 Quantitative	To identify what percentage of respondents have considered having a dyslexia assessment during their time at university. To explore how far along their educational journey students are when they consider a dyslexia assessment. To investigate if differences exist between faculties within the university in the percentage of students who consider a dyslexia assessment and how they proceed. To recruit students to phase 2.	Q1. How many respondents, who have not previously been tested, have considered having a dyslexia assessment? Q2. Are there differences in the demographics of students who have considered being assessed for dyslexia in relation to level of programme, year of study and the faculty they are studying in? Q3. Do differences exist between faculties within the university in in relation to how students proceed?	On line quantitative questionnaire delivered via I-survey. Survey available to all 22,000 students registered at one UK university. Survey designed to take 1-2 minutes to complete.
Phase 1 Qualitative	To obtain qualitative data from all of those who had considered being tested about why they did not go ahead.	Q4. What factors lead a student to consider being assessed for dyslexia? Q5. What factors encourage students to go forward and be assessed for dyslexia? Q6. What factors prevent students going forward to be assessed for dyslexia? Q7. Do differences exist between faculties within the university in in relation to the factors which influence student's decision making? Q8. How much do students understand about the nature of dyslexia? Q9. Does the student's perception of dyslexia influence their decision? Q10. What part do others play in student's decision making? Q11. Do students have adequate information about how and where to go to request an assessment?	Open ended question in I-survey with free-text response box
Phase 2 Qualitative	To obtain in-depth information from two groups of volunteers. Group A are students who have been tested for dyslexia whilst at their current university. Group B are students who considered having a dyslexia assessment but have not yet gone on to do so.		Follow up in-depth one to one interviews with 6 students from group A (students who had gone on to be assessed for dyslexia) and with 7 students from group B (students who considered being assessed for dyslexia but did not go on to do so). Interviews scheduled to last 45-60 minutes.

3.6 Phase 1 – On-line survey

3.6.1 On-line surveys as a method of data collection

The use of an online survey to collect data, is a relatively recent development, but is growing in popularity. Wright (2005) in a critical examination of the advantages and disadvantages of surveys concludes that whilst they offer researchers a way of surveying very large numbers of people, in a short amount of time and at a low cost, they require careful consideration in the planning phase. The main areas requiring consideration revolve around how a target sample will be accessed, potential self-selection bias and on a practical level what 'package' would be used to deliver the survey. The literature mainly focusses on surveys involving 'on-line communities', where the target population are strangers who are both geographically and demographically diverse, (Yun and Trumbo 2000). The approach is usually through an unsolicited email or online advert and as such extremely low response rates are not uncommon (Stanton 1998, Witmer et al 1999). This is attributed, at least in part, to incorrect email addresses being available resulting in non-delivery. Wright (2005) also draws attention to a potentially skewed sample, in terms of who chooses to reply, but suggests that as long as researchers recognise this, that it should not be a problem.

Since their introduction, when researchers would have created a document based questionnaire that then required them to 'cut and pasted' responses into SPSS or another software package, technology has advanced significantly. Specialist on-line survey packages exist, which not only allow researchers to create visually appealing surveys, but export results in a variety of formats. Phase 1 of this study used one such package, '*i-survey*'[33], to deliver a short electronic questionnaire which took most students 1-3 minutes to complete.

3.6.2 Function of the on-line survey within this research

Although the percentage of university students diagnosed with dyslexia following admission to university is known, (Singleton 1999); there was previously no data pertaining to the potential number of dyslexic students who were not identified. The primary purpose of phase 1 was therefore to scope the scale of the issue by gathering a large amount of quantitative data to answer research question 1. Data relating to which

[33] I-survey is an online system developed by the University of Southampton which is available for use by students free of charge.

faculty the students were from, and what year of study they were in were also obtained. This served two purposes, it provided an insight into whether students from certain faculties were more likely to consider that they might be dyslexic and helped address research question 3; it also facilitated cross faculty sampling within phase 2.

In addition to the quantitative data that it was clearly designed to gather i-survey was particularly valuable as it permits the use of different question formats. The majority of these require the respondent to select a predetermined answer in response to a closed question. However, it also allows researchers to design open ended questions with a free-text box provided for the response[34]. A decision was therefore made to incorporate a single open-ended question to obtain qualitative data from a much larger sample than could be interviewed. This provided a significant amount of data from 287 respondents who had considered being tested but had not gone ahead[35].

3.6.3 Design of the data collection instrument

The literature review had confirmed that no appropriate standardised data collection tools already existed. It was therefore necessary to create a questionnaire for use in phase 1 and to establish reliability and validity of the tool before it was used. Questions were devised based an understanding of the University structure (faculties/programmes etc) and on the process to assess for dyslexia.

Content validity was determined to ensure that the instrument covered an appropriate spread of items to examine the construct being measured. Polit and Beck (2004) highlight that there are no totally objective ways of determining content validity and advocate use of a panel of "substantive experts" (p423) to evaluate the proposed instrument. They suggest the use of three panel members unless the construct is complex, however to offer different perspectives it was decided to use three dyslexia experts and three academics with a specialist role in supporting students with dyslexia. Each individual was asked to evaluate individual items as well as the entire instrument, to ascertain if the items were *relevant* and *appropriate*. Each item was scored in terms of the construct on a scale of 1 to 4 (1 = not relevant, 2= somewhat relevant, 3= quite relevant, 4 = very relevant, (Polit and Beck 2004) from which a *content validity index* (CVI) was calculated. Polit et al (2007) suggest that there are different methods for calculating CVI and that researchers frequently fail to explain the method they used.

[34] The maximum size of the response (number of characters) can be determined by the researcher.
[35] This question was linked to the preceding question asking if they had ever considered being tested and was only visible to those who ticked the 'yes' box on that question.

They advocate counting how many experts score the item as a 3 or 4, and then dividing this by the number of experts consulted, which was the method used in this study.

There is debate within the literature surrounding what constitutes an acceptable CVI. Lynn (1986) suggested that when there were 5 or fewer experts that the CVI should be 1.0 in other words all experts agree. Polit et al (2007) refute this and currently advocate a score of 0.78 or above to indicate good content validity. The scores for each item were carefully evaluated in view of this controversy, especially as only five of the six experts approached responded. The scores are detailed in table 11. The items which scored a 2 related to whether a student had previously been tested for dyslexia, when and what the outcome was? The experts acknowledged that these questions needed to be asked; but when evaluating them mapped against specific research questions they reported that they could only score them as a 2. On reflection this had been influenced by how I had mapped the questions against the individual items and was not a true reflection of their relevance. As the experts concurred that the questions were all necessary no amendments were made to the instrument following their review. Furthermore, the overall score was calculated as 0.9 which confirmed that the instrument had high content validity.

Table 12 : Content Validity Testing

Item no	Scores per item					Content Validity Index (CVI)
	Dyslexia Specialists			Academics		
	1	2	3	4	5	
1	4	4	4	3	4	1.00
2	4	4	4	4	4	1.00
3	4	4	4	3	4	1.00
4	4	4	3	4	4	1.00
5	4	4	4	4	**2**	0.8
6	3	4	4	4	**2**	0.8
7	4	**2**	4	4	**2**	**0.6**
8	4	4	4	4	4	1.0

Measures to determine reliability including the use of statistical tests such as alpha coefficient were also considered, (Macnee 2004). This calculates how closely answers to different questions on a scale are related, by measuring consistency of response. This would have required extending the length of the questionnaire, and whilst invaluable when exploring subjective data, the nature of the questions being asked in phase 1 were either biographical in nature or factual yes/no answers. It was therefore considered inappropriate and unnecessary to attempt this type of measurement, particularly when keeping the survey short was a key objective.

This was important for two reasons, firstly from an ethical standpoint I did not want to ask respondents to do more than was absolutely necessary. Then secondly, but perhaps more importantly, the target audience were students who were known to be, or might be dyslexic. As previously mentioned in chapter 2 it was essential that recognition of the specific needs of dyslexic students was incorporated when planning the research. There is a wealth of evidence relating to both children and adults which demonstrates that individuals with dyslexia are likely to find reading more challenging than their peers. This includes key studies related to students within Higher Education, (Miles 1993; Rack 1997; Snowling et al 1997) which suggest that dyslexic students read more slowly and often need to re-read material to gain understanding. In addition, for some students with dyslexia development of the visual magnocellular system has been found to be impaired. This results in reduced motion sensitivity, unsteady binocular fixation and poor visual localisation, giving a feeling to the reader that the words are moving around or distorted (Irlen 1991; Stein 2001; Whiteley and Smith 2001). The data collection instrument used in phase 1 of the research was therefore created in a 'dyslexia friendly' way using the principles outlined in Cowen (2010a).

Despite the closed nature of the questions there remained a risk that reliability would be undermined if respondents did not understand the question being asked, (Polit and Beck 2004). The survey was piloted to ensure that the questions were clear and unambiguous. Ten colleagues, including 3 known to be dyslexic, completed the survey with only minor modifications made. All of the questions were considered clear; however, one question was viewed as potentially superfluous depending on the response to the preceding question. I-survey allows the question sequence to be set up to factor in responses, meaning for example that if a respondent answered 'no' to a certain question that they would skip forward to the next relevant question. Following the pilot this function was added to avoid respondents needing to answer questions which were clearly not relevant to them. Finally, as those completing the pilot were colleagues and were giving made up answers it was decided not to attempt a test-retest measurement of reliability, as this would have been testing their memory rather than establishing consistency. The type of

data being gathered was factual and reliability was therefore not considered to be particularly vulnerable.

The last thing considered when planning the i-survey was how it could be used to facilitate recruitment to phase 2. The final question therefore asked respondents to indicate if they would be willing to participate in a follow up interview to explore the answers which they have given. This meant that phase 1 not only provided rich quantitative data but provided a way of accessing the sample group for phase 2 who would otherwise have been hard to identify.

The final version of the online questionnaire is available in Appendix 4.

3.6.4 Sampling technique for the online survey

It is widely accepted that the quality of any survey research is dependent on the robustness of the sampling technique, (Fink 1995, 2003; Fowler 2009). Fowler goes on to say that critical issues related to sampling include a decision on whether to use a probability sample, the sampling frame selected, sample size, sample design and response rate, (Fowler 2009).

Probability sampling is normally viewed as the preferred method of sampling as it is designed to eliminate subjectivity and give all potential participants an equal chance of being chosen, (Fink 1995). The use of non-probability sampling techniques is therefore usually reserved for studies where population characteristics require the researcher to target specific sub-groups. For the purposes of this study a probability sampling technique was deemed to be the most appropriate but problems then arose when trying to decide on a sampling frame. It was important that the sample provided the opportunity to recruit students from each faculty within the university, in order that comparisons could be made.

Discussions consequently took place with the faculty statistician regarding how a representative sample could be identified that reflected the different levels of stratification. This was complicated by different size faculties ranging from 1143 undergraduate students in one faculty to 3610 in another; furthermore, the number of academic units contained within each faculty varied. Having carefully considered potential sources of sampling error/bias, and on the advice of the statistician, a decision was made to include all students registered with the university as the sample. Although this could have been considered over recruitment as only 10% of the population are likely to be dyslexic, it was important that the group who had considered being tested were not missed. Polit and Beck (2004) advocate always using the largest sample

possible, however this needs to be balanced against ethical principles and the requirement to consider participants time investment in the research process. Over recruitment potentially results in a greater time investment by the sample group than if a smaller sample were used. This was evaluated when planning the study but as the time required to complete the on-line questionnaire averaged 2 minutes during the pilot, the time investment was not considered excessive either individually or collectively. Table 12 outlines the inclusion and exclusion criteria for phase 1.

Table 13 : Inclusion and Exclusion criteria for phase 1

	Inclusion criteria	Exclusion criteria	Rationale
Phase 1	All students registered at one UK university	None	• To ensure that all students had an opportunity to participate. • It was not possible to identify students who had considered being assessed but who had not proceeded to testing.

3.6.5 Recruitment of student participants

Having established that the most appropriate strategy was to include all registered students, attention needed to be given as to how they could be approached. The Data Protection Act (Great Britain *Data Protection Act 1998*) provided very clear guidance on how personal data can be used. At the university where data was collected the use of email to recruit research participants was strongly discouraged; although it was at the discretion of each faculty involved. A variety of approaches were therefore employed to ensure that the message went out to a mass audience. These included recruitment posters, gate-keepers who could alert certain groups of students and an advert placed on the university's student portal. Copies of recruitment information are provided within the appendices as follows: advert (appendix 5), poster (appendix 6) and email sent to gatekeepers (appendix 7). All publicity material included information as to the date when the online survey would close.

Following ethical approval being granted by the university, an email was sent to the Associate Dean for Education/Student Experience from each of the eight faculties requesting permission to recruit their students, (see appendix 8). This had been designed as a courtesy measure but proved to have a significant impact on survey uptake. Three of the Associate Deans responded by stating that they did not wish to display the poster but would instead email the information to their students. When the survey subsequently went live it was noticeable that these three faculties all had a visible

spike in the number of their students completing the survey coinciding with the email being sent out[36].

Survey uptake was monitored through i-survey and following the initial spike remained steady across the three-week window that the survey was open. On the penultimate day it was noted that two faculties had very low response rates. This was attributed to these faculties both having a significant number of students away from the university at that time on clinical placement. As such they were unlikely to have seen the posters or the advert on the student portal. Discussions subsequently took place with the Associate Dean of the two faculties who both decided to send out an email to their student body. The survey deadline was extended for a further 6 days to allow these students time to respond. Again, this resulted in a dramatic spike in recruitment which raised interesting issues surrounding the benefits of email as a means of communication[37].

3.6.6 Response rate

Careful consideration was given to ways of maximising the response rate when designing the study. A low response rate will increase the potential for sampling bias to occur, with over or under-representation of a certain group, (Fink 1995, 2003; Polit and Beck 2004; Fowler 2009). Strategies used to encourage participation included making sure that the wording of the advert was friendly and conveyed why the research was being conducted. Keeping the online survey short was also seen as important. Finally, the study was timed to go live after the semester 1 exam/assignment period was complete, when it was anticipated that students would have more time available.

On the day that the study went live there were 21,837 students registered with the university. Of these 674 students completed the study, with a further 445 who opened the study via the link but chose not to complete it. If the 674 who completed the survey are compared against the total student population it would equate to a very low response rate. However, it was always recognised that most students would not view the survey as of relevance to them, which was not seen as problematic. The main purpose of phase 1 was to establish biographical data and provide volunteers for phase 2. It was therefore decided that rather than all students being the population of interest, the sub-group within this of students who were likely to be dyslexic were the primary target. In chapter 1 the difficulty in determining the precise percentage of the population who are dyslexic was discussed. Within the university sector this is even more difficult; with the

[36] I-survey dates and times each survey attempt, allowing me to assess the correlation between the time the email was sent and the student response.
[37] When time permits a detailed analysis of the spikes which followed the emails will be undertaken.

reported incidence for students commencing during the 2015/16[38] academic year as 5.21% of students (Higher Education Statistics Agency 2017). This figure appears significantly lower than the 10% level widely accepted within the general population, but does only include students who have disclosed a SpLD on admission. As there will be other students who chose not to disclose their SpLD, or are at that point undiagnosed, the true figure is likely to be higher. It was therefore decided to use the estimated percentage for the general population within the calculation which resulted in a response rate of 30.87%.

When determining what constitutes an acceptable response rate the majority of the literature reviewed addressed traditional postal surveys or unsolicited web surveys and was therefore unhelpful. In a paper relating to student evaluation of teaching within HE, and therefore a comparable population, Nulty (2008) reviewed 7 different online surveys and established that they had a mean response rate of 33%. This suggests that the response rate I achieved is consistent with normal practice. It does need to be acknowledged however that the requests for evaluation data considered by Nulty were all sought by staff known to the students. As such they were likely to yield a higher response than I might expect as an unknown researcher.

Finally, although those completing the survey were the main focus of the research, it was also interesting that 445 students entered the survey but did not complete it. The study was publicised through the university electronic gateway, posters and within some faculties by email. Each route provided sufficient information for students to know the context of the study before they chose to either click on the link or enter the URL. The unanswered question was therefore 'what drew them in?' and 'why they did not complete the survey?' In chapter 2 the literature surrounding 'disability identity' was introduced and it is possible that these students may have been deterred from responding to a survey on an aspect of disability. This was outside of the scope of this study to investigate and identifying students who chose not to come forward for this reason would be virtually impossible to do. Furthermore I-survey does not record details such as 'time within the survey' for those who do not complete. It was therefore impossible to determine if a respondent opened the link briefly and immediately closed it; or started to engage with the content but did not fully complete and finalise their responses. This meant that any speculation was unwise but does raise questions however, of whether there was an even wider body of students who had a level of curiosity about dyslexia; and what was behind that?

[38] This represents the most recent data available and includes Undergraduate, Post Graduate Taught and Post Graduate Research students.

3.6.7 Critical reflections on the design and conduct of phase 1

In keeping with the principles of reflexivity it was important to critically reflect on phase one before commencing the follow up interviews. This helped me to learn as a researcher by recognising potential limitations, caused by my relative inexperience, which I could avoid in future studies. Table 13 summarises the areas identified, the root cause and where possible how I would do things differently if conducting similar research in the future.

Table 14 Critical reflections on phase 1

Potential Limitations	Root Cause	Implications for future research
The free text responses within the i-survey only provided a snapshot view of what the respondent was feeling, with some data that would have been interesting to follow up.	Not all respondents who completed the i-survey volunteered for phase 2 The sample for phase 2 was selected using random numbers. As a result, even when respondents who would have been interesting to follow up had volunteered they were often not included in the final sample.	The fundamental principle of student choice to participate means that it would never be possible to follow up all respondents in a multiphase study such as this. Alternative sampling frames could be employed in future research, but the potential for selection bias would be controversial. The approach taken in this study was judged to be the safest.
The i-survey asked students if they had considered being tested for dyslexia and then why they had not gone ahead. It did not specifically ask why they had considered it. Although some students included a reference as to why they had considered it in their answer not all chose to share this information. It would have been beneficial to have had responses from a wide range of students on this topic.	Omission on the part of the researcher. This was an area identified for exploration through the interview phase and therefore not included within the survey. A desire to keep the i-survey as short as possible to encourage participation restricted the number of questions that could be asked, particularly free text responses which take respondents longer to complete. The i-survey was piloted on colleagues who had not considered being tested, as such their responses were fictitious and did not expose a potential gap in the line of questioning.	Although the decision not to include an extra question on this topic within the i-survey was a considered choice, it would have potentially yielded a wealth of additional data. The importance of continually revisiting the overall aim and research questions to be addressed in each phase of any future research is evident. This will enable me to retain focus and reduce any sense of frustration that I have not explored topics, even when these have been deliberately excluded from the study. Where appropriate these can form the focus of further research.
Implications for phase 2 Following analysis of phase 1 several areas of interest had emerged which required further exploration. The flexible design of the interview schedule, approved by the ethics committee, meant that no specific amendments were necessary before commencing phase 2.		

3.7 Phase 2 – Individual interviews

Phase two consisted of in-depth individual interviews with students who had completed the on-line questionnaire and who had indicated their willingness to participate in a follow up interview.

3.7.1 Function of individual interviews within this research

The purpose of this phase was to explore in-depth the decision-making processes which students go through when deciding whether or not to request a dyslexia screening. How other people influence that decision including peers, family or staff was also investigated. As outlined in Table 10 (see section 3.5) research questions 2,4,5,6,7,8,9 and 10 were addressed through the interviews.

3.7.2 Design of the interview schedule and format

With these research questions in mind it was important to decide what format the interview should take. In what is considered a seminal text Cohen and Manion (1994) outlined four alternative formats determined by the amount of structure the interview contains. These consist of the 'structured interview'; the 'un-structured interview'; the 'nondirective' and finally the 'focused interview'. A structured interview, where there are a predetermined set of questions, presented in a set order, was not judged to be in keeping with the research design, as these tend to focus on topics of interest to the researcher rather than those that may be more important to the respondents, (Mason 2002). Similarly, focused interviews, where the research topic has been analysed in depth and hypotheses generated in advance of the interview, were also felt to be too prescriptive. Non-directive interviews have arisen from a therapeutic or psychiatric interview mode and were originally described by Moser and Kalton (1977). Whilst these allow the respondent total freedom to discuss what they wish, they were likely to have been very time-consuming, covering a great deal of peripheral information and resulting in data that would have been very difficult to analyse. A semi-structured interview was therefore judged to be the most appropriate method, allowing students to share their story in the way that they wished. The interviews were conducted in a comfortable, private room at a venue convenient to the participant. Questions were asked in a gentle, non-coercive manner and throughout the interview attempts were made to put the participant at ease. Each interview was recorded on a digital voice recorder and lasted between 11 and 40 minutes.

To satisfy the ethics committee a list of potential questions/ areas to explore was drawn up (see appendix 9) however it was acknowledged that these needed to be flexible. A modified form of 'active interview' based on the work of Holstein and Gubrium (1995) was therefore used during phase 2. This offered a radical method of interviewing whilst reflecting the social constructivist approach which guided the study, (Berger and Luckman 1967; Garfinkeland 1967; Blumer 1969). Through this the importance of the respondent helping to generate meaning in addition to just providing answers is advocated. The interview becomes more of a conversation. Holstein and Gubrium (1995 p17) suggest that the researcher might suggest orientations and linkages "adumbrating - even inviting - interpretations" to help develop ideas and make connections. As this style of interviewing is radically different and would have taken time to perfect it was not used in its pure sense. It did however legitimise an approach where respondents were asked to attach meaning through dialogue within the interview when appropriate. Having personally never considered being tested for dyslexia, the participants were the only ones with 'expert' knowledge of what it was like. Universal prompts such as "how did you feel about that?", "can you tell me more about that?" and "why do you think you felt that way?" were therefore used to help clarify and explain the material further. Drever (1995) described 'prompts' as a method of encouraging the respondent to talk, or as a memory jog, but stressed that they must not be used to lead participants or put pressure on them to reply. The judicious use of prompts was also seen as being of value when interviewing known or potentially dyslexic students, as problems with working memory could have caused them to lose track of what they had been saying, (Miles 1993).

3.7.3 Methods used to recruit and sample participants for phase 2

Participants were drawn from those who had volunteered at the end of the i-survey, adhering to the inclusion and exclusion criteria outlined in table 14.

Table 15 : Inclusion and Exclusion criteria for phase 2

	Inclusion criteria	Exclusion criteria	Rationale
Phase 2	Students who had volunteered to participate in phase 2 during the online survey.	Students who had been formally diagnosed as dyslexic prior to commencing university as identified through Q6 and Q7 of the online survey.	The purpose of the study was to explore factors which influence university students' decisions to be assessed. Students who had been formally diagnosed prior to commencing university had already made this decision.

Potential participants were initially divided into two groups; group A (had gone forward for a dyslexia screening) and group B (had considered being screened but decided against it). These were sub-divided into the 8 faculties resulting in groups AA, AB, AC, BA, BB, BC, etc. following which each volunteer was allocated a personal identification number[39]. A sampling frame was devised to ensure a stratified random sample to be selected (see appendix 10) across faculties. One or two[40] students were initially selected from each group according to the relative size of the faculty using a random number generator[41]. Table 15 shows the number of volunteers from each sub group.

Table 16 : Volunteers from each sub-group for phase 2

AA	AB	AC	AD	AE	AF	AG	AH	Total
1	4	3	1	2	1	2	0	14
BA	BB	BC	BD	BE	BF	BG	BH	Total
9	37	28	6	34	7	24	1	146

Volunteers chosen by the random number generator were then contacted and invited for interview using the email address they had supplied. A follow up reminder email was sent, which encouraged some of the original sample to come forward, but not all those selected were able or willing to participate at that point in time. As the initial batch of random numbers had not provided sufficient participants, the original list of volunteers was revisited and the process repeated.

3.7.4 Final sample selected

Although as identified in Table 15, a total of 14 students initially volunteered for phase 2 from group A and 146 from group B, once active recruitment commenced a large percentage failed to respond to invitations. This was further complicated by their holiday and exam/assessment periods where no approaches could be made. This meant that significant periods of time were wasted, waiting for the next opportunity to approach volunteers. As a result, the final sample interviewed comprised 6 students from group A and 7 from group B.

[39] Personal Identification numbers were used to maintain anonymity (see also appendix 12)
[40] One sub-group had no volunteers for phase 2 so could not be included
[41] The computer based package *Research Randomiser* was used to select personal identification numbers from each sub-group to form the invited sample.

Within qualitative research there are no established rules for determining the optimum sample size, and data collection frequently continues until 'data saturation' is reached, (Morse 2000). A collection of papers compiled by Baker and Edwards (2012) on behalf of the National Centre for Research Methods proved invaluable in helping me to decide how many interviews were enough. Within their review paper Baker and Edwards assemble ideas from 14 world renowned qualitative researchers, alongside 5 early career researchers. Predictably opinions are divided with some advocating data saturation (Alder and Alder 2012), whilst others assert that the uniqueness of individuals means that there is no such thing, (Bryman 2012). There was also debate between whether methodological/epistemological considerations should dominate; or practical considerations, which for most researchers included the time and resources available. The consensus, if it can be described as such, was that there is no right or wrong answer. They submit that the researcher needs to be confident, and able to justify, that they have enough. In the case of this study although the number of participants in the interview phase was not as high as I had originally hoped for, by the time the final interview was complete I was satisfied that no new ideas were emerging. Although each individual had a slightly different story to tell, the key issues were being revisited repeatedly. I also had a wealth of data generated from the i-survey, which had yielded 287 sets of qualitative data. Together these reassured me that no further interviews were necessary and that I had achieved as near to saturation as was possible.

3.7.5 Critical reflections on the design and conduct of phase 2

Reflecting on phase 2 again there were lessons to learn. The two main areas surrounded recruitment of students to phase 2 and the subsequent sample size. In addition, it had been noted that some interviews were shorter than expected, with the shortest lasting a mere 11 minutes. Table 16 summarises the areas identified during phase 2 and again determines the root cause and how I could do things differently in future research.

Table 17 : Critical reflections on phase 2

Potential Limitations	Root Cause	Implications for future research
Difficulties in recruiting students to phase 2 resulted in a smaller sample than originally planned.	Following selection of each group of participants by random number sufficient time needed to be allowed for them to respond. A single follow up email was sent, after which there was a further period waiting for a response. Although students had volunteered at the end of the i-survey many of those selected did not reply to the invitation to phase 2. Holiday and exam periods resulted in lengthy periods of the year when it was impossible to approach students.	As all respondents have the choice to withdraw at any stage, without giving a reason, the lack of response by some students is unavoidable. In future studies I would allow a shorter time frame before sending the reminder and before selecting a further sample. This would allow more approaches to be made in the window of opportunity avoiding holiday/assessment periods.
Some interviews were shorter than anticipated	Analysis of the length of each interview revealed a significant difference between each group of participants with the mean interview length in group A being twice that in group B. This was likely to be attributable to two factors: Group B students had already identified reasons why they had not gone ahead to be tested in the i-survey, as such they were expanding on their previous response which took less time. Group A students had not previously had an opportunity to share this information and took longer to tell their story. In addition, some group B students disclosed during the interview that the idea of being tested was only a vague idea and not something that they had seriously considered. Therefore, even with prompts they only provided a short response to each line of enquiry.	The overlap between the i-survey question and the follow up interviews was inevitable as the purpose of the interviews was to obtain a deeper understanding. It was therefore not considered to be a problem that some interviews lasted less time than expected. Each interviewed ended with an open “is there anything else you want to tell me” question and it was clear that all of those interviewed had had an opportunity to share what they wanted to. Although a novice researcher, my experience in both clinical and educational settings has allowed me to develop sound communication skills. Therefore reflecting on my interviewing technique, I am confident that there was nothing more I could have done to elicit longer responses.

3.8 Ethical issues

All research is subject to rigorous Research Governance procedures to ensure that it is conducted in an ethically acceptable manner, (Department of Health 2005). The research proposal was submitted for peer review and ethical approval via the University of Southampton Ethics and Research Governance Online [ERGO] process. Evidence of approval is contained within appendix 11. During the planning process, careful consideration was given to the ethical principles surrounding autonomy, non-maleficence, beneficence and justice, (Thompson et al 2006). Two areas emerged as requiring particular attention; the fact that my faculty role presented a potential conflict of interest and the potential vulnerability of the population of interest.

3.8.1 Conflict of interest

As the research involved qualitative data collection it was important that I acknowledged any preconceived ideas that I may have held prior to commencing the study. Lincoln et al (2011) concede that the notion that objectivity can be enhanced through the reduction of researcher bias is more a 'regulatory ideal' rather than an attainable goal. However, despite this the principles of 'bracketing', frequently associated with qualitative research, were adopted where possible within this study, (Tufford and Newman 2010). One key aspect of this was to recognise the potential impact of my prior experience to the area of investigation.

In chapter 1 I outlined my interest in dyslexia and my role as an advisor within the Faculty of Health Sciences, acknowledging that either of these could impact on the research. The first of these was addressed through reflexive practice throughout the research. How this was incorporated was outlined in section 3.4, although it is revisited throughout the thesis with critical reflections on different aspects of the process. . Then to minimise the impact of my role a decision was made early in the design process to include students from all faculties across the university[42]. This helped to minimise any data bias from healthcare students but also had the added benefit of significantly increasing the impact of the study. Not only was data drawn from a much larger student population; but the diversity in terms of subject areas studied across the university helped ensure that the findings are transferable across the whole HE sector.

[42] There are 8 faculties in total and I am only directly involved in teaching students from 1 of these. When analysing data attention was given to whether students from my faculty responded differently but this proved not to be the case.

As the research was open to all students it was inevitable that some respondents would be from the Faculty of Health Sciences [FHS] and would know me, if only indirectly. Furthermore, my faculty role meant that I could have been directly involved with some of the students. Table 17 describes the potential sources of conflict identified when planning the research and how they were addressed. It was essential that all students, but particularly those from my own faculty were carefully reassured that they were under no pressure to participate and that the support offered to them would be the same whether they chose to participate or not.

Table 18 : Potential conflicts of interest and how they were addressed

Area of potential concern	Actions taken to minimise the impact
The existence of the Faculty Lead for Disability and Dyslexia role within FHS could have created an artificial environment and affected the student's decision-making process regarding an assessment.	Recruitment of students was from across the whole university to minimise the impact of this. During analysis of data from FHS participants, particular attention was given as to whether the student appeared aware of the role and if so whether this has in any way influenced their decision making.
Students from within FHS may be aware of my role and be concerned about repercussions if they choose not to take part in the study.	Study information given to the students who volunteered for phase 2 made it very clear that willingness or not to participate in the study would not in any way affect the support available to them both from central support services or from within their own faculty. (see appendix 13 and 14) This was reinforced on the consent form they were asked to sign. (appendix 15)
Students from within FHS may feel that they should give certain responses during the interview phase creating a potential source of bias.	Consideration was given to using a colleague to conduct interviews with FHS students but this was rejected due to potential issues with inter-rater reliability. Use of a carefully worded semi structured interview schedule helped ensure that all students were asked questions in the same way, although the flexible nature meant that not all questions were used in every interview. Attention was given during data analysis to signs of potential bias although a key area of interest was to consider if the presence of a specialist role made a difference to the student experience. Due to the potential to 'lead' students they were not asked about this directly but it was evident in responses across several faculties.

3.8.2 Issues related to 'vulnerability'

The nature of the project meant that some student participants were recruited from a vulnerable group. Dyslexia and other Specific Learning Differences are classified as a disability under the terms of the Equality Act (Great Britain *Equality Act 2010*) and therefore the fact that some participants had, or potentially could be diagnosed with a recognised disability needed to be considered. It was essential that consent was both informed and given freely; and that consideration was given to potential distress.

Information pertaining to the purpose of the research was included within the advert on the student portal, posters and where used in email advertisements. Participants were then required to access the survey either by clicking on an electronic link (email and student portal advert) or by accessing the URL provided on the posters. Although many researchers view this type of active participation as an indication of consent, an additional step was incorporated once potential respondents had had the opportunity to read additional information. I-survey required them to click in a consent box on the opening page before they could enter the survey properly.

When students completed the penultimate question on the online survey they were thanked for their participation and asked to consider if they would be willing to take part in a follow up interview. Details of what this would entail and how the required sample would be selected was then shared at the end of the i-survey (see appendix 4). To maintain anonymity students were invited to select a name and mode of contact (see appendix 12). Finally, respondents were advised that they would be contacted if they were required and would be sent detailed information and a copy of the consent form at that stage.

There were two further opportunities for participants to ask questions and make an informed decision regarding their participation. When they were contacted, using their preferred mode of contact, to arrange a suitable date, time and venue for the interview a copy of the detailed information sheet and consent form was provided. Then at the beginning of the interview, once they had been put at ease and introductions completed, a final check was made as to whether they felt that the information they had received was clear and if they had any further questions. All participants were asked to sign two copies of the consent form, one of which was then coded and stored in a locked drawer (see section 3.9 on data storage). The other copy was given to the participant for their personal record.

Any qualitative research which uses one-to-one interviews has the potential to cause distress to the participant, (Smith 1992). This study was asking students to reflect on personal experiences which may have been quite negative for some of them. It was therefore essential that adequate consideration had been given to how they would be supported both during and following the interviews. Prior to each interview commencing students were told that during the interview itself that the researcher could not discuss any issues that they might bring up.[43] They were advised however that there would be an opportunity at the end where they could be offered advice and if necessary be directed

[43] It is important that the research interview was not seen as 'therapy'.

towards appropriate support within the university. During the interview careful questioning, utilising interpersonal skills developed through an extensive career in nursing and more recently lecturing, minimised the risk of students becoming overly distressed. Only one student became slightly upset and they were asked if they would like a break, or to stop the interview. They chose to continue after a brief pause and were relaxed and considered happy[44] at the end.

3.9 Storage of data

All data collected has been stored on a University server which is accessed via a password protected computer. This will be kept in accordance with the University Research Governance policy, which currently requires retention of all research data for 10 years. Data stored electronically has been coded to protect the identity of participants. The coded consent forms have been stored in a locked drawer in an area which can only be accessed via an entry card swipe system.

3.10 Analysis of data

The following section outlines methods of data analysis used within the study. Designing a framework for the analysis was complicated by the fact that phase 1, although mainly biographical in nature, contained one open ended qualitative question. Figure 6 therefore outlines the different stages of analysis and how these were subsequently synthesised.

[44] The student was asked several times if they were okay which they confirmed.

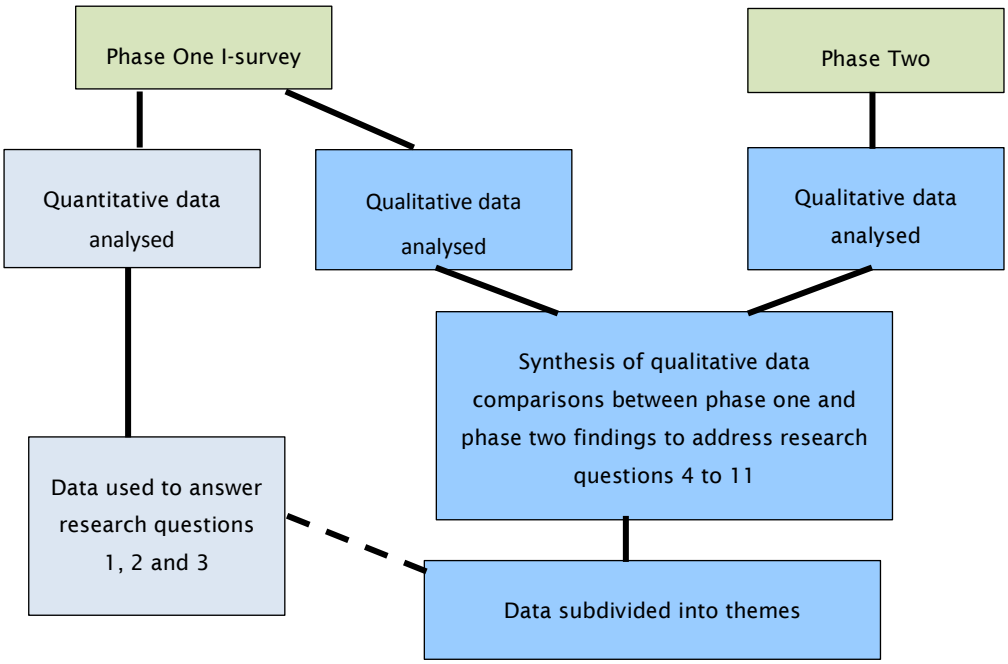


Figure 6 : Stages of analysis

3.10.1 Analysis of Quantitative data

The i-survey had been specifically designed with ease of analysis as a pre-requisite due to the large sample being accessed. Closed questions were created to provide nominal data on a variety of biographical/ factual topics. When the survey closed, the complete data sets were downloaded and saved as an excel file in preparation for data analysis. This has been selected as the preferred method as it enabled 'sorting' of data in various combinations. However, before analysis could commence attention needed to be given to incomplete data sets, where respondents had missed one or more questions. This had been predicted and strategies built in to the survey design to minimise the impact of this, allowing me on occasions to 'fill in the gaps'. One example of this was question 4 which asked students what faculty they were studying in. This was important information to make comparisons between faculties. However, due to a major university reorganisation shortly before the i-survey went live, it was anticipated that some students would not know which faculty they belonged to. The use of 'unsure' as a potential response was therefore included. Students ticking unsure were taken to a subsidiary question which asked what subject they were studying as a free text response. I was then able to cross check this with university subject data and ascribe the

faculty prior to analysing the data. Similarly, two students who did not answer Q5[45] on the survey asking if they had ever been tested for dyslexia, went on to identify when and where they had been tested. A 'yes' was therefore inserted into the missing box but was colour coded to signify that this was something I had inserted and not the respondents original answer.

Once downloaded into excel the 'sort' facility was used to group data according to the response to different questions. These were analysed manually and descriptive statistics used to summarise the findings presented in chapter 4. Two-dimensional pie charts and tables were created to display the data visually.

During the planning stage consideration had been given as to whether the research should include the use of inferential statistics, in particular the use of analysis of variance (ANOVA). This would have offered the opportunity to explore relationships between certain variables, for example the faculty or stage of programme; with the decision to be tested or not. However, it was decided that this was unlikely to be methodologically sound and establishing a statistical relationship between different factors was not a key objective of the research. The main intention of phase 1 had been to draw out students who had considered being tested, thereby allowing me to interview them in phase 2, which it achieved very successfully. The demographic data obtained provided answers to three research questions and helped to identify how many students were potentially being missed, which was also invaluable. However, any deeper inferences were likely to be unreliable in view of the relatively small and skewed sample and were therefore not attempted.

3.10.2 Analysis of Qualitative data

Although iterative analysis requires cross fertilisation of ideas, the initial stages of data analysis for the qualitative data reflect those commonly used within this paradigm. Qualitative data had been collected both through the i-survey and follow up interviews, each phase was analysed independently before individual responses were compared[46].

3.10.2.1 Pre-analysis of i-survey data

Participants who had answered yes to question 8 on the i-survey which had asked "if you have <u>not</u> been tested have you <u>ever</u> thought about having an assessment done?" were

[45] To avoid confusion between the main research questions and those contained within the I-survey the notation Q1, Q2 etc will be used when referring to I-survey questions.
[46] Where participants had provided a qualitative response in the i-survey (group B students only) this was compared with their interview data.

then taken to a linked question. This asked them "why did you decide not to be assessed?" and provided a free text box for their response. A total of 310 students answered yes to the primary question with 287 of these going on to give their reasons. These responses were downloaded into analysis sheets in preparation for coding.

3.10.2.2 Pre-analysis of interview data

Prior to analysis of the interview data it was necessary to transcribe the audio-recording of each interview verbatim. Unfortunately, despite the digital recorder being checked prior to each interview the last two interviews files were corrupted and could not be downloaded. These interviews took place on the last day of data collection. As both respondents; one from group A and the other from group B, had merely echoed what others had previously said it was not considered necessary to replace these interviews. In as far as data saturation can ever be achieved when considering individual opinions; the research had already generated a wealth of data and as no new themes were coming forward no further interviews were scheduled.

During transcribing notes were added to the transcript to reflect any emotion the participant expressed when describing their experience, for example if they had become upset or laughed nervously. However as potentially half of the participants may have been dyslexic[47] a decision was made not to include 'err', 'um' or pauses in the transcript. Individuals with dyslexia may take longer to process their thoughts and it was likely that there would be significant pauses in these interviews.

3.10.2.3 Analysis and coding

Having prepared both sets of data for analysis this was carried out manually. Thought had been given during planning as to whether computer-assisted qualitative data analysis software or CAQDAS should be used, (Fielding and Lee 1998). These programmes have clear benefits in helping researchers to organise data however it was judged that the software would be unable to support an iterative approach. Instead the constant comparative method of data analysis advocated by Glaser and Strauss (1999) for use within grounded theory was used. Although this study could not follow a grounded theory approach, due to my prior knowledge of the topic, I had used the constant comparative method previously and had found it really supported the iterative process.

[47] The criteria for selection was that the student had gone forward for screening which is the area of interest. Some of these students will have been found not to be dyslexic when a diagnostic assessment was completed.

3.10.2.4 Coding qualitative data

The first, and arguably one of the most important stages of the analysis was to 'code the data'. Charmaz (2006) suggests that coding generates the 'bones' of the analysis which are then subsequently assembled into a 'working skeleton'. The importance of this as an integral, rather than detached, stage of analysis had been stressed by Saldaña (2013) when he advocated splitting the coding process into two cycles. He went on to outline twenty five different methods of coding, each designed for subtly different purposes. As it was important to select the coding processes best aligned with the study design/goals each of the proposed techniques was carefully evaluated. This resulted in the framework for analysis outlined in Table 18. Although many of the processes used to analyse qualitative data were replicated when analysing phase 1 and 2, the more detailed responses gained within the interviews enabled deeper analysis. The longest datum in phase 1 had been 194 words which was considerably shorter than the transcripts obtained from phase 2.

Two of the methods suggested by Saldaña (2013) were selected. '*Causation coding'* the purpose of which was to extract attributions or causal beliefs from the data. This was considered appropriate to help establish what had motivated respondents to behave in a certain way and to reveal the complexity of the different influences and their subsequent effect. '*Versus coding'* was also chosen as traditionally this has been used to analyse strong conflicts and competing goals within, among and between participants. This method of coding proved to be instrumental in ensuring that the personal dilemmas which students often face were not lost in a potentially more reductionist method.

Table 19 : Coding framework employed to analyse qualitative data

Based on ideas from Saldaña 2013; Miles et al 2014 unless otherwise stated) *Elaborative* and *Longitudinal* coding practices described by Saldaña (2013) were not appropriate to this study and were therefore not conducted

Stage	Specific Processes	Description / Purpose
Pre-coding (Layder, 1998)	Splitting of data (Bernard 2011)	Adopted a line by line approach (Charmaz 2008) to ensure careful scrutiny of data. Text highlighted to identify rich or significant data.
First cycle coding	Causation coding	Goal is to extract attributions or causal beliefs. Appropriate for establishing motives and complexity of influences / effect on human actions.
	Versus coding	Traditionally used to analyse strong conflicts / competing goals within, among and between participants. Used in this context to examine internal conflicts.
	Theming the data	Organises a group of repeating ideas. (Auerbach and Silverstein 2003) Creates over-arching themes.
First to second cycle coding	Eclectic coding	Combines the categories generated through causation coding and versus coding.
	Analytic memo writing	Researcher creates 'notes' attached to coded data including reflections on the process / decisions taken. Encourages reflexivity.
Second cycle coding Works with first cycle codes	Pattern coding	Develops the meta-code. Identifies emergent themes linking similar codes together.
	Focussed coding	Searches for the most frequent or significant codes to develop the most salient categories. (Charmaz 2006)
	Axial coding	Aims to reassemble data that were split or fractured during initial coding (Strauss and Corbin 1998). Identifies dominant codes and removes redundant codes to select the most representative.
	Theoretical coding	Functions as an umbrella. This is usually associated with Grounded Theory to establish the core category.
Synthesis between phases	Constant comparative data analysis (Glaser and Strauss 1967)	Comparison between data obtained in different phases to seek confirmation and explore divergence, dissonance and difference. (Cook, 1985)

Each set of data were imported into the analysis sheet, an example of which is provided in appendix 16. They were then methodically highlighted, summarised and finally coded to complete the first cycle of coding, (Saldaña 2013). This resulted in a total of 79 causation codes being attached and a further 6 versus codes. At the time of coding it was felt that many of these potentially overlapped but no attempt was made to merge any categories at this stage to reduce potential bias. Sipe and Ghiso (2004 p482-483) remind researchers that "all coding is a judgement call since we bring our subjectiveness, our personalities, our predispositions [and] our quirks to the process". Lincoln and Guba (1985 p347) had previously discussed how researchers use 'classification reasoning' in combination with their tacit and intuitive senses to decide which data "look alike" and "feel alike" and it therefore felt important to develop a set of rules that I could use when deciding how to code each statement. This was in keeping with the 'analytic memo writing' described by Saldaña 2013). A template through which to create analytic memos, as part of the process of reflexivity, was therefore designed and is included as appendix 17.

Having completed 'first cycle coding' and 'first to second cycle'; the analysis moved into the deeper 'second cycle coding' phase. Saldaña (2013) described this as the process through which categories are fitted together to provide a "meta synthesis of the data corpus", (p207) to facilitate thematic, conceptual and ultimately theoretical organisation of the data. As predicted during second cycle coding some of the original codes were changed as the level of analysis deepened. Data were re-examined in response to the analytic memos, which proved to be an invaluable tool in helping me to question "why did I put it in that category?" and "have I got it right?" Finally, when considering '*axial coding*' which examined if data have potentially been split or fractured during initial coding a decision was made to re-examine and re-code all data related to whether students considered being tested as 'necessary'. This had initially encompassed several overlapping sub themes, all of which remained after re-examination but with a variation in the number of respondents coded under each sub code.

3.10.3 Iterative analysis

The final stage of analysis was the iterative process of analysis, where the data was synthesised between phases and as it is gathered. This reflects the constant comparative method advocated by Glaser and Strauss (1967) but stoped short of their ultimate stage of generating an all-encompassing theory. Despite not taking the data to this ultimate level, relationships between concepts were carefully analysed in order to gain a comprehensive understanding of what emerged as a complex phenomenon.

3.10.4 Critical reflections on the analysis and coding of data

Throughout this chapter the principles of reflexivity have been embraced to critically evaluate any potential bias in the design or conduct of the study. The final area considered was a reflection on the analysis of data and how it was coded. The analytic memos described in section 3.10.2.4 proved to be invaluable as the data was analysed and re-analysed throughout the research. The inevitable areas of overlap were clearly identified and revisited, leading to revision of the code attached. One potential limitation was identified in that there was no opportunity to undertake respondent validation of data following analysis, (Bazeley 2013). This was due to two factors; firstly the anonymity offered within the i-survey meant that unless a student had volunteered for phase 2 there was no way of identifying them. In addition, as a part time researcher, by the time that data were analysed many of the students had completed their studies and left the university. The fact that respondent validation would not possible was recognised from the outset of the research and strategies built in accordingly. This included the use of the analytic memos and a reflexive approach at each stage of the process, to ensure that credibility of the findings was maintained.

3.11 Chapter summary

This chapter has articulated the decisions made as the research was designed and conducted. It began with an exploration of mixed methods research, exploring the philosophical assumptions which underpinned this. Although the original intention had been to conduct a mixed methods study, as the research developed it became clear that I was compromising on too many of the key principles associated with this approach. This led instead to the adoption of an exploratory qualitative design and the remainder of the chapter detailed how this was conducted, providing a rationale for each decision made.

Where appropriate considerations specific to the target audience were also introduced throughout the chapter. These included how data collection instruments were designed to be ‘dyslexia friendly’. The potential to exclude participants who might find a data collection tool inaccessible is not always recognised by researchers, other than the obvious aspects of language. This chapter has not only drawn attention to this but has embedded good practice within the study design.

Chapter 4: Findings

4.1 Introduction to the chapter

The aim of this research was to explore what factors influenced student's decision making when they were deciding whether to be assessed for dyslexia. To achieve this, it was necessary to start by scoping if there was, as anticipated, a population of students who had considered being assessed but who had not go on to do so. Having identified that such a population did exist, attention then turned to identifying if there were particular characteristics that might make this group easier to target in the future. The major focus of the research had always been to investigate why these students had made the decision not to request an assessment. Reasons why a small group of students did decide to be assessed were also explored however, which offered an alternative perspective. This chapter shares findings from both phases of the research relating to each of the areas of interest.

4.2 Exploring the scale and demographics of the population

Although Singleton (1999) established that 43% of dyslexic students are identified whilst at university, there had previously been no attempt to determine how many other students had considered an assessment but not gone forward. The i-survey provided a method to not only scope this, but to also understand some of the demographics of this population. Table 19 outlines the three questions addressed through the quantitative data, although question 3 was answered more fully when the qualitative data was analysed.

Table 20 : Scoping and demographic research questions

Q1: How many respondents, who have not previously been tested, have considered having a dyslexia assessment?
Q2: Are there differences in the demographics of students who have considered being assessed for dyslexia in relation to level of programme, year of study and the faculty they are studying in?
Q3: Do differences exist between faculties within the university in relation to how students proceed?

As I was initially only interested in those students who were still at the deliberation stage the i-survey included a question (Q5) to establish if respondents had ever been tested for dyslexia. Of the 674 students who completed the survey, 72 students answered yes to this question and were therefore excluded when analysing subsequent linked questions. Two further students had responded positively to the question but on closer examination one of these had been screened but not formally tested; the other was 'tested' at school but found to be negative. Both these students suspected that they were dyslexic and were considering requesting an assessment; as a result both were included in the analysis. This resulted in a population of 602 students whose response to the linked question (Q8) asking if they had ever considered being tested was then analysed. Of the 602; 10 did not provide an answer (2%), 310 had considered being tested (51%) and the remaining 282 had not considered it (47%) (see figure 7).

The fact that 310 students had considered being tested was noteworthy on several levels. It represented a good size sample to analyse, both in terms of looking at the demographic spread and the qualitative data obtained from this group. Furthermore, it provided evidence that within the university concerned that there were a sizeable number of students who had thought about being assessed, but had not done anything about it. This was particularly concerning when the qualitative data was analysed and revealed that 38 of these students specifically mentioned personal areas of difficulty characteristic of dyslexia. It is therefore likely that had they gone forward for an assessment that many of them would have been found to have been dyslexic and could have then been provided with support.

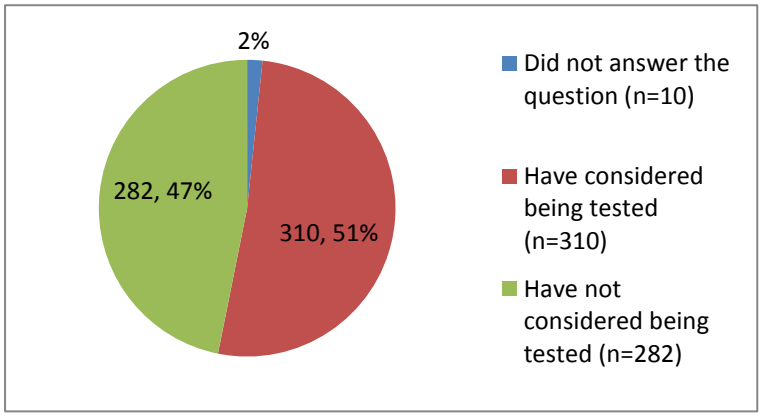


Figure 7 : Percentage of respondents who had considered being tested for dyslexia

The next stage of the analysis focussed on the students who had reported that they had considered being tested, to explore if there were any differences in their demographics. Areas of particular interest surrounded the level of programme, year of study and the faculty that they were studying in to determine if any clear differences emerged. Two

data sets were incomplete meaning that analysis was performed on 308 sets of data. Tables 21, 22 and 23 summarise the demographic spread by level of programme, year of study and faculty. Most students were full time, but where there was a combination of full time (FT) and part time (PT) students this is indicated.

From table 21 it can be seen that 257 students were on undergraduate programmes ranging from year 1 to year 6 of study. Although there were no dramatic variations across the first 3 years[48], there was a slight peak in year 2; with 66 students considering a test during year 1, 85 during year 2 and 73 in year 3. The i-survey did not specifically ask students at what point they had considered dyslexia, as this was an area that the follow-on interviews were designed to explore. It was therefore only possible to determine reasons relating to timing when these were contained within their response. Where data was available it was clear that the main trigger was as a result of academic difficulties[49], something reinforced strongly during the interview phase. This is consistent with the literature which suggests that as an academic task becomes more challenging that dyslexic students may find that strategies that they have developed are insufficient, (Mapou 2008). Whilst this relates to known dyslexics it is likely that all adults will have developed some strategies, irrespective of a diagnosis. For those without a formal diagnosis, and subsequent support, the potential to develop these strategies to cope with higher order tasks may be compromised. It is therefore not surprising that the numbers did not differ notably across the different years as some students would have better strategies and not start to struggle until a higher academic level was reached.

The i-survey also revealed that 17% of those who had considered an assessment were on a Post Graduate programme, of whom the majority (58%) were undertaking Doctoral level study. For one of these students the suggestion, from their supervisor, that they might be dyslexic had come after their final PhD viva. They talked about the challenge of having to remove dyslexic type errors from their thesis or risk failing. They had chosen not to be assessed as they felt it was "too late to make an impact on my studies" but were clearly frustrated that it had not been picked up earlier.

Table 22 provides a detailed breakdown of the 19 students who stated that they were studying a Post Graduate Taught (PGT) programmes. Of these 10 were studying at Masters level, 3 at Doctoral level and 6 at an unknown level. Finally, 32 students registered for a Post Graduate Research degree (PGR) had contemplated a dyslexia assessment. Of these 3 were at an unknown level, 2 were at Masters level and the

[48] The majority of UG programmes are 3 years in length
[49] This is discussed in more depth in section 4.5.1.

remaining 27 were studying for a PhD, of whom 22 were prior to upgrade and 5 post upgrade as displayed in table 23.

When interpreting the data, it does need to be acknowledged that although students were asked what year they were in at the time of completing the study, the i-survey only asked if they had ever considered being tested. It is therefore possible that some of the students had thought about it in a previous year of study rather than the year they were in at the time of the survey. Caution therefore needed to be exercised when identifying when students are most likely to consider an assessment.

Across all three tables, depicting UG, PGT and PGR students the actual number of students who responded and indicated that they had considered an assessment is relatively low when compared to the total student population. Furthermore, differences in faculty size, particularly across the different academic levels preclude any straightforward comparison of interest across the university. Table 24 therefore displays the number at each level as a percentage of the likely dyslexic population. This allows the real population of interest to be considered, and reveals striking differences across each stage of an educational journey. In 4 of the 8 faculties the percentage considering it at PGR level is higher than for the UG students. Furthermore, within one faculty the percentage of PGR students was as high as 50% of those who might be dyslexic[50]. Qualitative data gathered through this research, presented later in this chapter, has started to reveal some of the reasons why students contemplate a dyslexia assessment, even at quite a late stage of their studies. However, this is an area which requires further exploration specifically targeting PGR students.

[50] Based on the 10% of the general population level

Table 21 : Demographic spread of students on an undergraduate programme who had considered being tested for dyslexia by faculty and year

Level of programme and year of study		Faculty								Total
		Business and Law	Health Sciences	Medicine	Humanities	Natural and Environmental Sciences	Physical and Applied Sciences	Social and Human Sciences	Engineering and the Environment	
No of UG stud		2150	2400	1250	2500	1560	1143	3610	1560	
UG	1	6	15	7	3	17	7	11		66
	2	6	31 (FT) 1 (PT)	8	1 (FT) 1 (PT)	17	3	16 (FT) 1 (PT)		85
	3	6	18 (FT) 1 (PT)	12	3	22		11		73
	4	1		10		5	1	1	1	19
	5			9						9
	6			2						2
	Total	19	66	48	8	61	11	40	1	254 + 3[51]
% of UG students in faculty		0.04 %	2.75 %	3.84 %	0.32 %	3.9 %	0.9 %	1.1 %	0.06 %	

[51] Two students declared that they were undergraduate but did not give the year of study; and one student did not declare their faculty or subject area

Table 22 : Demographic spread of students on a Postgraduate Taught (PGT) programme who had considered being tested for dyslexia by faculty and year

Level of programme and year of study		Faculty of								Total
		Business and Law	Health Sciences	Medicine	Humanities	Natural and Environmental Sciences	Physical and Applied Sciences	Social and Human Sciences	Engineering and the Environment	
No of PGT stud		1100	480	80	250	50	290	1240	300	
PGT	1		2 (PT)					7		9
	2	2 (PT)			2 (PT)			1 (FT) + 2 (PT)		7
	3							1 (PT)		1
	4	1								1
	other		1 (PT)							1
	Total	3	3		2			11		19
% of PGT students in faculty		0.27%	0.62%	0	0.8 %	0	0	0.89 %	0	

Table 23 : Demographic spread of students on a Postgraduate Research (PGR) programme who had considered being tested for dyslexia by faculty and year

Level of programme and year of study		Faculty of								Total
		Business and Law	Health Sciences	Medicine	Humanities	Natural and Environmental Sciences	Physical and Applied Sciences	Social and Human Sciences	Engineering and the Environment	
No of PGR stud		150	100	140	200	340	369	410	370	
PGR	1	1 (PT)	1 (FT) + 1 (PT)	1		6	1	2	1	14
	2		1			1		2		4
	3	1	1			1		5	1	9
	4		1 (PT)					1		2
	5					1				1
	other					1		1 (PT) year 7		2
	Total	2	5	1	0	10	1	11	2	32
% of PGT students in faculty		1.33 %	5 %	0.71 %	0	2.94 %	0.27 %	2.68 %	0.54 %	

Table 24 : Percentage of students on UG, PGT and PGR programmes who have considered being tested as a percentage of the potential dyslexic population[52] within each faculty

Level of programme	Faculty of							
	Business and Law	Health Sciences	Medicine	Humanities	Natural and Environmental Sciences	Physical and Applied Sciences	Social and Human Sciences	Engineering and the Environment
% of potential dyslexic population of UG in faculty	0.4 %	27.5 %	38.4 %	3.2 %	39 %	9 %	11 %	0.6 %
% of potential dyslexic population of PGT in faculty	2.7 %	6.2 %	0	8 %	0	0	8.9 %	0
% of potential dyslexic population of PGR in faculty	13.3 %	50 %	7.1 %	0	29.4 %	2.7 %	26.8 %	5.4 %

[52] Based on an estimation that 10% of the general population are dyslexic

4.3 Consideration of differences between faculties

The final area that demographic data within the i-survey sought to illuminate, was if there were differences across faculties, particularly in terms of how students chose to proceed. As before, to reflect the different faculty size and complexity, it was decided to take into consideration the number of students from each faculty who had responded. Table 25 therefore summarises the number of respondents from each faculty, followed by the number who had been tested (group A); and the number who had considered it but not gone forward (group B). Each figure was then converted into a percentage of those responding from the faculty, making comparisons between faculties easier. Faculties have deliberately not been anonymised as the qualitative data, discussed later in this chapter, revealed that on some occasions the subject being studied directly influenced the student's decision.

Table 25 : Differences in how students proceed across faculties

	Number of respondents from faculty	Respondents who had been tested for dyslexia whilst at university (Group A)		Respondents who have considered being tested for dyslexia but have not gone ahead (Group B)	
		No of students from faculty	As a % of those responding from faculty	No of students from faculty	As a % of those responding from faculty
Business & Law	51	1	1.96%	25	49.01%
Health Sciences	128	8	6.25%	74	57.81%
Medicine	106	7	6.60%	49	46.22%
Humanities	28	2	7.14%	10	35.71%
Natural & Environmental Sciences	148	3	2.02%	68	45.94%
Physical & Applied Sciences	37	1	2.70%	12	32.43%
Social & Human Sciences	165	5	3.03%	61	36.96%
Engineering & the Environment	6	0	0	3	50%
Incomplete record	5	NA	NA	NA	NA

It is apparent that although the actual numbers vary enormously across faculties, when converted into a percentage the differences are less pronounced. The three faculties with the highest number of students who had been tested were Humanities (7.14%), Medicine (6.6%) and Health Sciences (6.25%). At the other end of the scale, no students from Engineering and the Environment had been tested, however the fact that only 6 students from this faculty completed the survey must be considered.

When the number of respondents who had considered being tested was examined the percentages rose dramatically. Health Sciences had the highest percentage with 57.81%, closely followed by Engineering and the Environment with 50%. The lowest percentage, within Physical and Applied Sciences, was 32.43%. This highlights that across all faculties within the university between one third and two thirds of students who completed the survey had contemplated being assessed. In 5 of the 8 faculties the percentage exceeded 45%; although most had not gone ahead with this. The fact that this was a self-selecting sample, who were sufficiently motivated to complete the i-survey, meant that they are unlikely to reflect the entire university population. However despite this the existence of 310 students who had considered being tested was noteworthy.

The exploratory nature of this research had been specifically selected to facilitate exploration of the reasons that influenced a student's decision to proceed or not and to determine if there were differences between faculties. Although the qualitative data started to reveal some of the reasons behind this, due to insufficient volunteers for phase 2 from within some faculties not all cross-faculty variations could be examined properly. One example of this was that none of the students from Engineering and the Environment who had considered being tested chose to proceed. However, as none of these students volunteered for phase 2 factors that influenced this could not be determined. It would therefore be interesting to explore behaviour within and across faculties in more detail in future research.

One factor which might have influenced students' decision making was the information given to them by their faculty. If their attention was drawn to the possibility of an assessment, it could result in a higher proportion of students at least contemplating it, even if they did not ultimately proceed. During analysis of the demographic data I was aware that my role within Health Sciences could have inflated uptake in year 1 within that faculty, as a result of a session during induction. Close examination of the data revealed that the uptake across each year of the UG programme within Heath Sciences did not differ markedly from that in other faculties so any distortion was unlikely. Availability of information did emerge from the qualitative data as a major theme however and will be discussed later in this chapter.

4.4 Qualitative Findings

Having revealed that 51% of those responding to the i-survey had considered being assessed for dyslexia, but had not gone ahead, it was important to understand the reasons behind this. The remainder of this chapter will share qualitative findings, from both the i-survey and subsequent interviews, that exposed the complex and multifaceted reasons why students do not go ahead. Interview data from 5 students who had been assessed whilst at university is also presented as a comparison; revealing factors that motivated these students to seek an assessment. Four major themes emerged which provided answers to the research questions listed in table 26. These are shared within this chapter to illustrate the range of issues involved before being discussed and contextualised in chapter 5.

Table 26 : Qualitative Research Questions

Q4: What factors lead a student to consider being assessed for dyslexia?
Q5: What factors encourage students to go forward and be assessed for dyslexia?
Q6: What factors prevent students going forward to be assessed for dyslexia?
Q7: Do differences exist between faculties within the university in relation to the factors which influence students' decision making?
Q8: How much do students understand about the nature of dyslexia?
Q9: Does the student's perception of dyslexia influence their decision?
Q10: What part do others play in student's decision making?
Q11: Do students have adequate information about how and where to go to request an assessment?

4.4.1 I-survey data

Although designed to be predominantly quantitative in nature the i-survey included one open ended question which asked respondents who had stated that they had considered being tested reasons why they had not gone ahead? (Q8) (see appendix 4). This question was clearly mapped to research question six but was also designed to help address questions eight, nine, ten and eleven.

In total 287 students responded to Q8 yielding a wealth of qualitative data. This was analysed using the process outlined in chapter 3 with all responses being read and key points highlighted. These were then summarised on a coding sheet prior to having a 'first cycle' code attached. An example of an analysis/ coding sheet is contained within appendix 16. First cycle coding resulted in 94 different 'causation' codes being attached in addition to 6 'versus codes', (see appendix 18).

Inevitably many of the initial codes potentially overlapped. This was in part due to the limited depth of data obtained, compounded by the inability to clarify responses. One example of this related to "*time*" which initially had three codes attached: "*time*", "*waste of my time if negative*" and "*waste of others time if negative*". A further code was used to describe a "*waste of resources if negative*" which could have also included time within it. It was therefore important not to try and condense the codes too quickly and thereby risk losing subtly different data as analysis moved into the 'first to second cycle' coding phase. The analytic memos described by Saldaña (2013) which promote reflexivity proved invaluable during the process of reduction. Detailed memos were kept justifying why, following re-scrutiny of the data, codes were merged as the 'first to second cycle' coding process was completed. This resulted in the 63 codes and 12 emerging themes displayed in table 27.

During the process of 'first to second cycle' coding I had made the decision to deviate slightly from the process described by Saldaña (2013). He advocated using 'eclectic coding' through which categories generated through 'causation coding' and 'versus coding' are combined. Close examination of the 9 versus codes (3 had been added during deeper analysis) revealed that their true essence, to highlight personal internal conflict, would be lost if they were assigned to an individual category. Versus codes were therefore kept separate and are listed in table 28.

Table 27 : Collapsed first cycle causation codes from i-survey data

Collapsed Codes		Initial Theme
• international student		Access to help
• doing okay	• strategies in place	Doing okay
• ashamed • cheating • confidence to talk to someone • guilt • not sure want to know • people will think I am stupid • excuse	• denial • don't want to be dyslexic • embarrassed • harm • peace of mind • pride • self esteem	Emotional aspects
• discrimination • Labelling • stereotypical views • disclosure • locus of control	• employment • long term implications • stigma • expect less of self • others expect less	Implications
• advised against it • other people's opinions • peer being tested	• problems identified/ suggested by others • problems not identified by others / never suggested	Influence of others
• don't think I am / unlikely • not bad enough • not got around to it • cannot see benefit	• on line quiz negative • vague concern • hassle • don't need extra time / help	Necessity
• stupid / low IQ • will feel silly if negative	• waste of time / money	Negative result
• accessibility	• availability	Process
• comparison with others • occasional symptoms • normal symptoms	• exhibiting potential symptoms • problems attributed to other reasons • comparison with expected issues	Symptoms
• don't believe it exists • no cure	• extra time for exams / resources unfair • people won't take it seriously	Views regarding dyslexia
• undecided		Undecided
• test booked • referral • cost • time	• dyspraxia • lack of information • transport	Other

Table 28 : Versus codes from i-survey data

Get words jumbled up….. *versus*…..Can spell okay
Stigma…..*versus*…..Sure I am
Written English and spelling poor…..*versus*….. Good grades
Benefits….. *versus*…..Label
Think I am…..*versus*…..Cost of being tested
Labelling and need to declare it…..versus…..Just due to intelligence
Not sure I have it…..versus…..Think I am
Motivation (to be tested)…..versus….. Having problems
Paranoia….. versus…..Advised to have test

4.4.2 Interview data

The process of analysing the interview data mirrored that described for the qualitative aspects of the i-survey. In total 13 interviews were completed, although two recordings were corrupt and could not be downloaded. These two interviews[53] took place on the last day of data collection and although they could not be used it was notable that they did not contain any new material, but merely reinforced what had been said in earlier interviews. This meant that it was not necessary to schedule further interviews; resulting in 11 interviews being transcribed and coded.

Care was taken to ensure that although a number of codes had already been established and reduced, that the interview data was not manipulated to fit the existing codes. Following 'first cycle' and then 'first to second cycle' coding processes an additional 24 'causation' codes (see table 29) and 3 versus codes were created from the interview data, (see table 30). The majority of these new codes arose from group A participants and provided a different perspective, albeit linked to the same overall themes. These were the 5 students who had been assessed for dyslexia during their time at university and had therefore not been asked to answer the qualitative question (Q8) on the i-survey. Their inclusion within the study revealed factors that had encouraged these students to seek an assessment; in contrast to the factors which had held others back, and thereby answered question 5.

[53] One was a group A student, the other group B

Table 29 : Additional causation codes from interview data

	Additional Codes	Theme
Group A Interviews	Anxious	Emotions
	Ready to quit	Emotions
	Delay in testing	process
	Assessment process	Process
	Induction	process
	Supportive staff	Influence of others - positive
	Benefits	Perceived benefits
	Tipping point	Necessity
	Societal awareness	Understanding
	Disability	Understanding
	Disappointing others	Perceived risk - extrinsic
	Not achieving predictions	Necessity
	History	Emotions
	Encouraging others	benefits
	Common issue	Emotions
	Didn't want test	Emotions
	Confirmation	Emotions
	Frustration re others	Views re dyslexia
	Attitudes of others	Perceived risk - extrinsic
Group B interviews	If it continues	necessity
	Don't want to be tested	emotions
	Good information	information
	Curiosity	necessity
	family	other

Table 30 : Additional versus codes from interview data

Benefits of extra time…..*versus*…..Pride
Did not want to…..*versus*…..Knew something was wrong
Available…..*versus*…..Hassle

4.4.3 Annotations used when presenting qualitative data

Although the process of transcribing and coding qualitative data was outlined in chapter 3, the annotations used when presenting these data require explanation and are articulated in table 31. It is also important to state that throughout the chapter the i-survey data is presented exactly as it was downloaded, and therefore frequently includes typos and spelling errors made by the participants. These were deliberately not corrected to convey where the participant may have been showing signs of dyslexia in their responses.

Table 31 : Annotations used when presenting qualitative data

Annotation	Explanation
…….	Used where sections of the transcript have been omitted, usually because the student went off at a tangent. Rather than presenting a series of separate quotes the dots were used to separate aspects of the quote whilst presenting a coherent story
[ ]	Used to clarify a point where necessary. These were not part of the student account but are necessary for the reader to understand the context.
“ “	Used to convey data taken directly from the i-survey or interview transcript
‘ ‘	Used when the student quoted what someone else had said within the interview
[laughs] [cries]	Not always included within transcribed data, but used on occasions to convey particular emotions.
(BG03/PGT1)	Used to identify the student. The first letter differentiates between group A or group B respondents; the second letter the faculty code, finally their identification number. The second part indicates if the student is Undergraduate (U), Post Graduate Taught (PGT) or Post Graduate Research (PGR) and what year of study they are in. For ease of comparison the same codes are used across the i-survey and follow up interviews.

4.4.4 Second cycle coding and emergence of the final themes

Having coded the qualitative aspects of the i-survey and interviews separately the data was synthesised during ‘second cycle coding’ as the major themes emerged. Due to the

breadth of data captured within the i-survey it was notable that the interview data served mainly to add richness and facilitate clarification, rather than revealing any new themes. The emerging themes fell within 4 different dimensions, although in some areas there was overlap. These are portrayed visually in Figure 8.

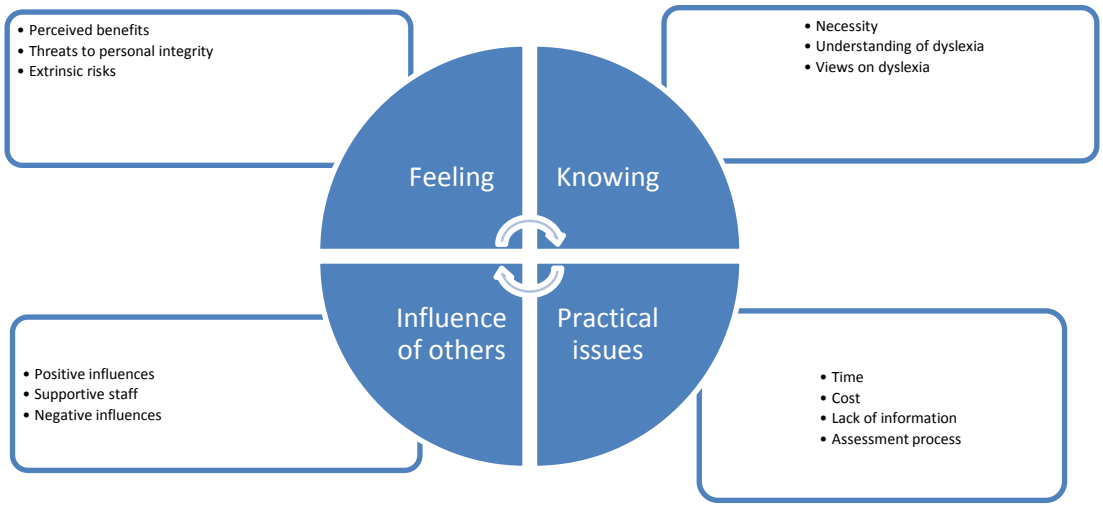


Figure 8 : Influencing dimensions

4.4.5 Lone voice or consensus

When considering how to present the findings it was necessary to return to the philosophical assumptions which underpin research paradigms. From an ontological perspective Lincoln et al (2011 p99) remind us that constructivism acknowledges "individual or collective reconstructions coalescing around consensus". A decision was therefore made to present the key themes which were common to many of the participants, but not to lose the 'lone voice.' This was particularly important where the message was judged profound. The analytic memos (Saldaña 2013) facilitated reflexivity and helped me to acknowledge where I might be attaching a more subjective meaning to the data. To ensure transparency where the findings represent a lone voice this is explicitly stated.

4.4.6 Overview of findings

The remainder of this chapter will share and briefly discuss data spanning all of the key themes. This approach has been selected to give the reader a deeper insight into the breadth of factors which influenced students both positively and negatively. Chapter 5 will then focus on the most significant findings, contextualising these alongside existing

literature and revealing the contribution that this study has made to expanding the body of knowledge.

4.5 Knowing

Having analysed all of the data the strongest theme, in terms of the frequency with which it was mentioned, related to what students *knew* about dyslexia. This comprised of three sub-themes although there was potential overlap between them. These were whether they considered a dyslexia assessment ***necessary*** or not, which in itself was often influenced by their ***understanding***. Finally their ***personal views*** about dyslexia and what they perceived as the validity of the assessment process were often influential.

4.5.1 Necessity

The single most cited factor influencing their decision to be tested, whether in a positive or negative way, related to their perception of whether it was necessary or not. In total there were 212 responses within the i-survey that linked to necessity. This represented 58% [54] of those who had indicated that they had considered being tested. In addition all of the students interviewed talked about it, but with marked differences between those who had gone ahead for testing and those who had not.

To capture the more subtle nuances findings are categorised as there being '***no point'***; their feeling that it was '***not a priority'***; that they were or always had been '***doing okay***' and finally specifically related to those who had gone ahead to what constituted the '***tipping point***'.

4.5.1.1 No point

The following selection of i-survey quotes reflected a common feeling that there was no point (n=71) or no benefit (n=24).

> "*It doesn't change anything even if I am*." (BE53/UG3)
>
> *"It would take up too much of my time and be of limited value*." (BE56/UG3)
>
> "*Because I do not think it is necessary*." (BG37/PGR3)

[54] Some students provided responses that were coded under several of the sub categories within necessity resulting in the figure of 212. When each individual was considered the % value was determined.

This last student also participated in the interview phase and elaborated on their initial response.

> *"I succeeded so far in my life, so I mean maybe I don't know if I do have it, or maybe I don't, but it's not really affecting me whether I have it or not; therefore, there's no need to deal with it, as I see, kind of. I do have a minor – you know. I don't know if you can have it in a minor case or major case, so. But, I felt it's not really affecting me, so therefore there's no point in going to have a test, as it were." (*BG37/PGR3*)*

Even where students suspected that they might be dyslexic they were strongly influenced by the degree of impact that they considered that it was having.

> *"it was sort of like "Oh, I'll try and do it", and I sort of like gave myself probably six months, and if I couldn't do the work, you know"* (AB01/UG1)

> *"Doesn't feel as though I'm constantly affected every day severely enough." (*BF09/UG4*)*

During the interviews one student talked about how an Access Course tutor had suggested investigating whether they might be dyslexic when they started university.

> *"The Tutor said to me 'When you get to Uni, think about it, go and see what options there are', and I didn't. What's the point? You know, I've been in the workplace not quite 15 years, but just under. I was like - 'Really, what's the point?'" (AG01/UG2)*

Despite it having being suggested to them the student could not see the necessity at that point so decided not to go forward. They went on to say that it was only when they really started to struggle that they had decided to go ahead.

> *"Towards the Christmas of my first semester and my first year, I just couldn't keep up… there was something really wrong; I didn't understand anything; I just was coming out of lectures thinking 'I've not kept up with anything; I just don't remember anything in that' and eventually got to the point like maybe I should go and get tested. So I did." (AG01/UG2)*

They had reached what I have called the '***tipping point'*** which was a key concept to emerge through the research. Further illustrations of this are presented in section 4.5.1.5.

4.5.1.2 Not a priority

In many cases (n=33) it was just not seen as a priority and students mentioned that they just had not got around to it.

> *"Only a very vague concern."* (BB15/UG1)

> *"have thought about being tested recently but havent got round to doing it yet."* (BE42/UG2)

> *"I suppose that I never got down to it and never put it as a priority."* (BG05/PGT1)

Even when encouraged by others some students chose not to respond straight away. The quote below comes from a student, who during a 1:1 meeting with their Academic Tutor when they commenced university, had the possibility of dyslexia suggested. They eventually went for a screening in December and were subsequently found to be dyslexic.

> *"It was more of a case of 'Well I'll get round to doing it at some point.' 'Cos, I think it's more to prove her wrong than anything! [laughs]. But, sort of, em, no sort of, it's just a case of 'yeah, I'll get … I'll sort it out later on,' kind of thing. 'Cos to me it wasn't important, because …sort of I've got this far in my life, so -* .(AB04/UG1)

This also highlights the notion that if they had got by until then there could not really be anything wrong.

4.5.1.3 Doing okay

This notion of 'doing okay' appeared to be a key influence to whether students saw any point in investigating further. In some cases this related to previous educational experiences, for others experiences on their current course. Within the i-survey 58 of the students who had considered being assessed stated that they were doing okay.

> *"doesn't seem to inhibit my grades too much." (*BA16/UG3*)*

> *"Has never impaired my abilities at school in studying or caused any major problems. Have always managed to achieve high grades in school etc. So did not see great benefots in being tested." (*BC25/UG3)

*"I felt that if i could get into university it was clearly not serious enough to be an issue." (*BE08/UG1*)*

Several students discussed how others had told them they were doing well and that meant that they could not be dyslexic.

*"I was told that if I did have it it 'couldn't be that bad you're [I'm] doing medicine'." (*BC40/UG5*).*

It was also noticeable that all of those interviewed from group B (had not been assessed) specifically mentioned that they were doing okay, in contrast to only 2 out of the 5 from group A who had chosen to be assessed.

4.5.1.4 Difficulties evident

However out of the 58 students who felt that they were doing okay, in terms of them getting good grades; 22 also talked about the areas they struggled with. With my awareness of dyslexia I recognised many of these areas of difficulty as being characteristic of dyslexia.

*"I am really struggling with the reading and can not seem to remember the beginning of a sentence by the time that I get to the end so have been wondering if I should be tested." (*BG34/UG2*)*

"*Although I make mistakes with reading and writing I always notice when I go back over it so I can correct it*." (BB38/UG2)

"My understanding that it's like of like misspelling things, but there's the spell check on the computer and everything, it does it for me, the phone does it for you. So, so even if I -. Even if I did have it, then there are things out there that kind of correct for it. So maybe it's just a minor problem, and not really an issue." (BG37/PGR3)

It appears that these students had all developed strategies that helped to disguise the difficulties that they were having. As such at the point of the survey none of them had reached a point where they felt motivated enough to request an assessment.

In addition one student, in their 4th year of a Full time Post Graduate Research degree, acknowledged that they were likely to be dyslexic; but felt that their intellectual ability helped them to overcome it.

> "*I am pretty sure I have some form of dyslexia/dyscalculia as it is commonly diagnosed. However I seem to have in built ways of recognising symptoms and coping and have a generally high intellectual capacity and it doesn't seem to have aversely affected my progression very much*." (BG51/PGR4)

For others their success was attributed to hard work, but for one student interviewed it was evident that this had hidden the difficulties that they were really experiencing.

> *"I was putting a lot of work in….. my written word, I always put a lot of time in, so that was always like of a good standard if I could put the time in, when I have the time to do things I can get like good….because I put in the hard work, despite being bad at exams I always got like pretty good results, I was, I am at university, like I got to university so obviously my grades are like pretty decent, but so like in terms of teacher awareness with me they saw like a student who was blimberling along, they didn't see anything too spectacular looking at my results but also like I was…. they didn't need to worry about me, I wasn't at the bottom of the barrel so….um…. yeah there wasn't really any incentive to get tested before that…… I always push, because I have always had to push and maybe that's why I have come out as the mediocre student, if I didn't push as much then maybe my grades would have dropped and maybe my tutors would have picked up on it sooner……" (AA01/UG1)*

Analysing these findings, and in particular the more emotive interview data, highlighted the fine balance that exists between students doing okay, often due to effective coping strategies and finally admitting that they had a problem.

4.5.1.5 Tipping point

Even for those with good strategies there eventually came a point where they acknowledged that there was an issue and sought help. All of the quotes below stem from interviews with students in group A, who had gone forward to be tested. Lengthy quotes have deliberately been selected to convey their 'story' and highlight that although they possessed strategies that had helped them get to where they were, below the surface they were paddling like mad to keep up. Four different factors were identified that acted as a tipping point.

The first of these was when the grades that they were achieving did not match those expected of them.

"Predictive grades were a lot higher than actual grades, so then I got five GCSE's at C, so it's like why didn't you get higher ones? … when your teacher said "You'll probably get A or a B" and you don't, you're a bit like oh….." (AG01/UG2)

"One of the tutors said to me, when we went to get feedback on I think it was like the first ever assignment we'd done….. he said 'Oh I expected more from you' was his comment." (AG01/UG2)

For another student it was the mismatch between course work and exams.

"I tended to get predicted very high marks however I completely flunked the exam and yes I just got sick of ending up in tears every single results day and decided there was probably something else going on, rather than just messing up on the exam…….I am an intelligent person, so I knew that my results are just not correlating with what I know that I am capable of and how much work I was putting in…. like all the teachers would say that 'you put in this much work and you will get this much out' but like it never happened that way, that's it…….I have always been an active participant and I was putting a lot of work in….. my written word, I always put a lot of time in, so that was always like of a good standard….. my ICT GCSE was 60% course work I got 100% in it but because of the exam I ended up with a C." (AA01/UG1)

The academic demands of a university degree also meant that some students could no longer avoid tasks that they found challenging.

"I never read as a child… well like I read enough to get through but I have never read for joy or pleasure or anything like that, I used to avoid it and so I just thought that reading wasn't my thing….. it's not my thing so it shouldn't really be a problem…….So it was only when reading was really getting to be like important, that you had to really focus on your studies that anything really came into my peripheral about dyslexia or anything along those lines." (AA01/UG1)

Finally, one student found that coming to university removed a key source of support in the shape of their mother.

"Well I'd always struggled with algebra, all the way through school, Mum had helped me a lot … and then when I came to university obviously that support, I didn't have it any more …it started to become more of an issue and the maths in our first year was self-taught and I was having real issues with it, and I kept you know saying like, I was having real trouble with it, and it was like adding things up wrong and really simple mistakes." (AF01/UG2)

It was particularly noticeable that all of the students interviewed from group A said something that was related to the tipping point, but that no one from group B did. For the group A students interviewed, having reached their tipping point and requested an assessment, it was noteworthy that all of these students were then identified as being dyslexic.

4.5.2 Understanding

Fundamental to whether or not students perceived being assessed for dyslexia as necessary was their understanding of the condition. During the research students talked about what they understood by dyslexia and what had shaped this. Judgements about necessity were often linked to comparisons between themselves and either what they perceived the symptoms to be; or what they saw in others. Finally, students often rationalised their own problems; with them proposing other possible reasons for any difficulties they experienced.

4.5.2.1 What is dyslexia?

From the i-survey data it was clear that lay understanding of dyslexia was limited. All of the responses below are from students who stated that they had considered being tested but it was evident that they were unsure of what dyslexia actually is.

> "*its not easy to recognize symptoms especially when youv not been informed about them ever*. " (BE15/UG1)

> "*I actually do not know exactly what makes a person dyslexic*." (BE27/UG2)

> *"I am trying to pin point the point when I knew what dyslexia was … and all the different ways it affects people." (AA01/UG1)*

Even those who had been assessed and identified as dyslexic were still rather vague.

> *…. I think I know more now having been through the process of being diagnosed. Before I was diagnosed it was like no it was reading and it was writing you know, and you get letters swapped around and things like that….. so I didn't really know that much about it, I have found out more by going through the process and like reading through my report and finding out what areas they were looking at. It was quite interesting just learning about it and the fact it can affect different people differently it's not just you do this, this and this…. and anything else isn't dyslexia – it's something else. (AF01/UG2)*

There was an acknowledgement that it is more talked about now than it previously has been. One student talked about the impact that media coverage had had on her and how that had ultimately led to her being tested.

> *"it's more out in the open and everything now…. It's more in the media sort of side of thing. And I used to sort of think 'well it does sound a bit like what I probably have problems'. I do have, but not, you know, I'm not severe as some other people. But I do have problems with that and I do have problems with that…… there's been a lot of programmes on Dyslexia recently, you know celebrities that have struggled through things. ……If I hadn't watched TV or hadn't read up about it, I probably wouldn't know any different sort of thing. And … you know, I probably might have not gone and had an assessment." (AB01/UG1)*

When asked about how they felt if the symptoms being talked about did not match what they were experiencing they replied:

> *"Yeah….. because I looked, you know, watched these programmes and think 'Oh no I haven't really got that; I haven't really got that' and you think 'Ok, so half those things I might have'. But it wasn't probably until I read into it more, where you – it's diagnosis like slight/severe/moderate sort of Dyslexia affects everybody differently, because it's you know, the way it's all – all – you process everything in your brain sort of thing. And everyone's different. (AB01/UG1)*

Increased coverage, coupled with the fact that symptoms vary between individuals was a source of frustration. The following quote is from a student undertaking a Post Graduate Certificate in Education who had hoped that teacher training would aid their understanding; only to find that it did not.

> *"It is talked about too much … meaning nothing, which is a real problem. You almost need a new name I feel! Yeah. I mean … people saying they have Dyslexia and I don't know, … does that mean that they've been tested and they've got a strategy to deal with it? Or does it mean they don't like reading? …. . I think more information would be helpful."* (BG38/PGR3)

4.5.2.2 Comparison with expected symptoms

The degree to which students discounted the possibility of dyslexia if they personally did not struggle in areas they associated with the condition was marked. Within the i-survey

data 16% (n=47) students made a direct reference to expected symptoms and provided a significant insight into their decision making.

> "*I easily get my words jumbled / mixed up when writing an essay but I can spell ok*." (BB39/ UG2)

> "*I think you assume that if you can spell and read then you haven't got any difficulties*."(BB45/UG2)

> "*A student in my secondary school was tested because it seems s(he) had 'bad' handwriting. I do not have this issue and do not find that the letters mix up on the page when I read which is my (limited) view of what dyslexia is*." (BD2/UG1)

> "*Because I don't have that bad spelling it's just formulating coherent sentences that I struggle with which may not have anything to do with dyslexia*" (BE66 /UG4)

Similar views were expressed during the interview phase.

> *"And if you think hard enough there are all sorts of strange habits you habits you have, which you say "Oooh maybe that's dyslexia". But, I decided in the end that that was silly. …..But you know, time is short and you have other things to do, and you think 'Have I ever felt a problem with words or reading? No.' So, I didn't go…….I didn't recognise most of the, what I thought was typical signs in myself." (BG38/PGR3)*

> *"At that point dyslexia was words; there was never…. I didn't know there was any other form of it, and because I was generally ok with words* (AG01/UG2)

In all of these cases the students had considered being tested but had not gone forward. It would appear that they were often deciding that because they could spell; or did not have difficulty with writing that they were unlikely to be dyslexic. What was particularly significant was that the areas that they were declaring difficulties with are also characteristic of dyslexia, although less well known. This insight into how much students were influenced by a limited perception of dyslexia was a key finding of the research.

> "*I am not sure if the things I have trouble with fall under the diagnosis of dyslexia as I tend not to have trouble with reading but I do for example when writing (or even typing) have the right letters but in the wrong order or write a word based on how it sounds like rather than the way I would normally know it is supposed to be written. These sorts of things tend to happen more when I am tired. Also*

again I am not sure that it falls under dyslexia but when speaking I often (I would same more than other people) get my words all the wrong way around in a sentence or switch the first letter of two adjacent words in a sentence e.g lirst fetter!" (BC32/UG4)

This last student, who seemed to be experiencing a range of difficulties, indicated that they occurred more when tired. Whilst this could be the reason it was interesting to see the range of other reasons that students blamed for their difficulties.

4.5.2.3 Other reasons

Tiredness was the most frequently cited with 5 students stating this in their i-survey.

"*do not think I have it as only rarely mix up words and think its probably tiredness rather than dyslexia*." (BA12/UG3)

"*I was suffering from blurred vision whilst reading but this decided this was most probably due to tiredness as it coincided with periods of heavy workloads and lack of sleep*." (BA10/PGR3)

Other reasons included students feeling that they just were not trying hard enough, or in one case too hard.

"*I put my problems down to being a slow and inattentive reader*." (BB33/UG2)
"I just thought it was down to me perhaps not concentrating properly, or I didn't prepare enough for the exam." (BF10/UG1)

"it was just when I came up to uni and I thought it was just because I am trying so hard to get everything written down, I was getting it in the wrong order for that reason." (BA08/UG2)

Students also cited gaps in their education, returning to study after a long gap and language difficulties as possible reasons.

"*I have to work hard to achieve my grades and just assumed this was because there were gaps in my learning from my school education*." (BB54/UG3)

"*I thought my academic level is poor being a mature student*." (BB34/UG2)

The last two quotes selected, from interview data, were particularly revealing. Both came from students who had gone on to be assessed and were identified as dyslexic. Although they each represent a single student, and therefore an isolated instance; it is hard to portray on paper the sentiment with which they were conveyed. For both

students what they were discussing had significantly delayed them seeking help and the second quote really demonstrates why this happened.

> *"I suppose I just put down to me just being thick kind of thing, rather than having a problem*." (AB04/UG1)

> *"I also have visual stress and have always had blurred vision, because I have always accepted that my vision is a bit weird, so I think that maybe that in terms of my reading as to why I felt the effects - I kind of wrote it off as being my bad vision, so that may well have stopped me from getting tested I think, because I could just write it off as something else, and again with the admitting there was something wrong, if you can just write it off as something else that's the easier option." (AA01/UG1)*

4.5.2.4 Comparison against others

Having reported the impact of students comparing themselves against expected symptoms the comparison against others was also profound. In some cases they cited friends or family who they could see were really struggling and dismissed their own difficulties as trivial in comparison. In other cases it was linked to an observed area of difficulty in others that they did not possess. The following quotes are taken from the i-survey data and help to highlight both the frequency and impact of their comparisons.

> "*I have friends who are dyslexic that often struggled with reading and talking aloud which was something I did not."* (BD01/UG1)

> "*Lately when I compared meself with other student I discovered that im much slower in reading and undestsanding that others*." (BC04/UG1)

> "*I met people who were severely dyslexic and I realised I was not that bad so did not need the help she needed*" (BC29/UG4)

The interview phase provided the opportunity to explore this in more depth. The next two quotes illustrate how the students concerned discounted the possibility of dyslexia, despite them both having areas they found difficult, because they were not as bad as others.

> *"I think that's another reason why I did not think it's that big a deal because my brothers dyslexic, he finds it really hard to read and he is really poor at spelling and then my friend, another friend from home, it's not dyslexia it's like with numbers, so it's weird like she can tell the time backwards but not forwards and*

numbers are all funny for her. So I thought like I am not to that extreme so I didn't think it was that big a deal, so I don't really know that much to be honest. …… it wasn't until my uni friends pointed out that they are obviously not as bad as my brother but they still write stuff in the wrong order and things like that, but again because I thought of my brother I thought I am obviously not dyslexic or maybe not to that severity…. I think I just don't really know that much about it so I just thought it not that big a deal if I can't write things in the right order being compared to my brother who struggles to read." (BA08/UG2)

"I think you sort of – do sort of try and gauge, and compare yourself to others. And you sort of see what trouble they have and try and compare, to see if you have anything or the same sort of issues. Actually, my housemate who's Dyslexic, yesterday we were, talking about, direction knowing your left from your right… and little bells were going, 'cos I know that's one of the things for them and they're like, [laughs] and my other housemate who wasn't Dyslexic was going "well I don't understand what the problem is?" [laughs]. She said 'Just do the "L" thing' and I was thinking 'Well sometimes it's hard to know which way the L goes round!" (BD08/PGT2)

Although these quotes, both from students who had not gone ahead for testing, reveal that if the student does not perceive themselves as affected as much as others they may still ignore potential signs. For others the comparison may be the trigger that they need. The student below described how they had discounted dyslexia until they started university and formed a strong friendship with a student who is dyslexic. This opened their eyes to the range of difficulties associated with the condition and prompted them to go forward to be assessed.

"And everyone's different. …because you think 'Oh no I haven't got that; haven't got that; haven't got that, so I probably haven't got it' sort of thing……because everyone I've met is completely different with their – they've got Dyslexia. And I think 'Well how can that Dyslexia person you know, spell all these words and be really, really good at spelling?' And I've got to a stage and I can't spell anything. And then you've got, you know -. So you can really write really well, but they can't do practical things. And I just sort of thinking, it is very vast. It is very, very vast, and I never realised, probably until coming to University, how vast it was. Because of – my best friend that I've met here, you know, she had Dyslexia and she is completely – you know, I'm here and she's here [indicated a gap with hands] *we're completely different. But you know, we both need support in*

different ways, sort of thing, which I didn't probably realise as much as how vast it was until I come here." (AB01/UG1)

One of the most interesting interviews to listen to involved a student who, despite him never having been tested, was convinced that her husband was dyslexic. A significant proportion of the interview was devoted to talking about him and the struggles that he has. Throughout the interview the student compared herself to her husband and expressed the shock that she had felt when it was **her** who received a diagnosis of dyslexia during her first year at university.

"sort of like how he writes; sort of like. It's almost like he writes -. … … How he writes it's like he's trying to cover up his bad mistakes. Like he will get letters round the wrong way …. He struggles with reading; his specialty is reading the kids school books to them, with them. He struggles, it's like some of the simple words. So sort of like, various things like that I would have said that yeah, he, he was. But I just didn't put myself into that category with him. ……. It – it was a shock. 'Cos I –as I say, going back to compare myself to my husband, I'm not like him. So I know sort of it's a huge umbrella for – it affects people different ways, but to compare myself to him, that -. I, I, - we've got completely different traits. So … [laughs] I'm not …. It's a bit of a shock when it came back I am……Sort of comparing myself to him, I'm not – I sort of … I – I didn't have a -. I don't have the same traits as what he has. Sort of like things what he struggles with, I don't struggle with, so how can I be Dyslexic?" (AB04/UG1)

4.5.2.5 Genetic link

A small number of students (n=8) talked about family members being dyslexic, although it was not clear from the i-survey data whether they were aware that a genetic link has been identified. What it did influence however was their perception of dyslexia, with comparisons often made between themselves and their relatives as discussed in the previous section.

"*I have a son and daughter who are both registered as being dyslexic they are aged 11 and 13 due to the stage they are (not able to write sentances and my daughter was writing her name upside and back to front!!)I thought I possibly couldn't be but having found out my cousin was diagnosed with a mild form whilst at uni I realise that there are different measures!*" (BB10/UG1)

"*I seriously considered it after my much younger sister was diagnosed with dylexsia during her sixth form however her symptoms were more severe than mine*." (BD07/PGT2)

Two of the students participating in the interviews did talk about genetic influences. The first had chosen not to go ahead and be tested, as although they acknowledged family traits, they assumed that it was just a family problem with English.

"I've never thought my family's never been that great at like English or writing or things like that.... I always thought ah well maybe it's a gene thing" (BG37/PGR3)

The other student, following their own diagnosis talked about forcing her son's school to screen him.

"It's like my thought is the fact if you've got one parent who's dyslexic, the chances of, of my kids going to pick it up is higher and if both of us are, then my kids don't stand a lot of chance really! [chuckles] about getting it. So my son's come back as a "moderate" as well. … So, we're jinxed!" (AB04/UG1)

4.5.2.6 Showing symptoms

Although students did not recognise them as such, they often talked about difficulties that they experienced which are characteristic of dyslexia. I have deliberately chosen to include multiple examples to illustrate both the frequency and range of 'symptoms' discussed.

*"I transverse numbers regularly. Telephone numbers that I read and even car number plates." (*BB25/UG3*)*

*"I tend not to have trouble with reading but I do for example when writing (or even typing) have the right letters but in the wrong order or write a word based on how it sounds like rather than the way I would normally know it is supposed to be written. Also again I am not sure that it falls under dyslexia but when speaking I often (I would same more than other people) get my words all the wrong way around in a sentence or switch the first letter of two adjacent words in a sentence e.g lirst fetter!" (*BC32/UG4*)*

*"I have difficulty differentiating between left and right. I often misread words and can transpose letters when writing." (*BG57/PGR7*)*

*"reasons that make me think I have dyslexia: slow at reading, my eyes seem to jump about the page, terrible short term memory, good long term memory, disorderly to name a few." (*BE68/UG4*)*

*"I am really struggling with the reading and can not seem to remember the beginning of a sentence by the time that I get to the end so have been wondering if I should be tested." (*BG34/UG2*)*

*"I said I sometimes found it hard to take text in and often find myself reading over it again." (*BB29/UG2*)*

On some occasions the difficulties being experienced did prompt action; the quote below is from a student who requested a screening as a result of the issues described. In their case Enabling services felt that the results did not warrant undertaking a full assessment, although the student was clearly still worried.

*"Sometimes I think that I am dyslexic purely because my handwriting is absolutely awful which worries me especially during/ after exams. I also swap words in sentences and letters in words although not all the time. Sometimes it feels that my brain is going quicker than my hand and I am either missing letters or words from a sentence." (*BE27/ UG2*)*

The final illustration, taken from another of the follow up interviews showed that even in the face of potential symptoms and encouragement by others; that the decision to go forward is still very much in the hands of the individual.

"Because I found like last year, I think it is was towards the end of the year when I was writing things out I found that I was writing letters in the wrong order, and then I was writing words in the wrong order, and stuff like that without thinking about it. I just thought it was because I was writing too quickly or something like that, and then I mentioned it to a friend and he said "oh that's like me, I have dyslexia and I do that". Then I said to someone else and they said exactly the same thing so I thought about getting tested and then I thought it's probably not that big a deal, if I just write a bit slower and focus on what I am writing its fine." (BA08/ UG2)

When this was explored further with the individual the fact that they had previously done okay and that they had only recently started to 'struggle' played an important part. They did acknowledge that if it continued that they might consider being tested but then revealed what was holding them back. In this instance the student was doing a law degree, where there was a requirement that spelling and grammar should be perfect.

This student felt that being found to be dyslexic might go against them. Further examples of this are shared in section 4.6.3 when considering *extrinsic risks*.

4.5.3 Views re dyslexia

The final aspect that appeared to have an influence within the 'knowing' dimension was the respondent's views on dyslexia and how it is managed. Although these could have been included when considering feelings, analysis of the respondent's comments highlighted that they were more closely linked to their understanding.

One student discussed how on a previous Masters course, his/her statistics lecturer had recommended a test for "numbers dyslexia "but stated that they had not gone ahead because they did not feel that such a thing really existed. (BG19/PGR2)

Others questioned the process of diagnosing dyslexia, with one suggesting that a lot of people claim to be dyslexic without having been tested. This student went on to suggest that they were worried that people would therefore not take it seriously. The fact that the nature of the assessment process, and to some extent what they are looking for, is unclear to students in advance lead some students to question the validity of the assessment process. One student discussed in the interview how they had felt after a tutor had suggested being assessed, and that they had then decided to read more about it.

> "*I did some research on it when he suggested it. … I felt like everything based online was incredibly vague, and I felt like this is the way with every, every illness; …people getting convinced that they have something, like hypochondriacs etc. and it's just …When I was reading through the symptoms, and it's like 'Have difficulty with like interpersonal situations' and other stuff like that. And it's like, fair enough I can identify with some of them, but how would I know? …. I guess, look at the testing procedure, you've got to also judge that the person testing you is sort of reputable enough, accurate enough to be able to diagnose you with this, because there's of course mis-diagnosis' and stuff like that*." (BF10/UG1)

Another student recounted what they had been told by a peer who had gone through an assessment, which caused them question the process.

> "[quoting their friends account] *all they asked me was if I could spell the word physics*?" (BB24/UG2)

Several students felt strongly about the fairness of what they described as the 'perks' of being classified as dyslexic. The allocation of extra time was considered as something that was given out indiscriminately and was unfair. One student really questioned the necessity of extra time in a maths exam.

Two of the students also described the provision of what one described as "free stuff" (BD08/PGT2) with students being given a computer "once the dyslexia box has been ticked" (BE04/PGR1). They felt that this was not always needed and that resources could be used elsewhere.

It appeared that these views were influencing their perception of dyslexia and attitudes to testing as a whole.

4.6 Feeling

Prior to undertaking the research it was anticipated that students may be influenced by their emotions. Underpinning literature related to both the psychological impact of dyslexia and psychology in more general terms was therefore briefly introduced in Chapter 2. However having analysed the data, although relevant to a small number of individuals, overall students were not particularly influenced by many of the areas I had expected. The three areas categorised under a feelings umbrella include positive emotions, often linked to ***perceived benefits*** of receiving a diagnosis; followed by a discussion on ***threats to personal integrity*** and finally ***extrinsic risks***.

4.6.1 Perceived benefits

In chapter 1 the relationship between a formal diagnosis and support was identified. Students who had considered a test but not gone forward recognised this, but had mixed feelings about the benefits on offer, particularly the extra time allowed in examinations.

> "*I always struggled to finish exams and felt the extra time would be very beneficial*." (BD01/UG1)
>
> *"Although it's tempting to get better marks (as I don't think I've ever actually had enough time to finish an exam in 5 years of taught studies…. I think it would prevent me having any real pride in my marks*." (BG04/PGT1)
>
> *"I felt that gaining extra time for exams was a form of cheating."* (BG28/UG2)

Where students had been formally assessed, and perhaps had a better understanding of the full range of support available, a range of practical benefits were also identified. These included receiving a book allowance (AB04/UG1); extra time in exams (AF01/UG2) and the opportunity to record lectures (AG01/UG2). However these students also talked about the valuable strategies to aid their learning they had developed through 1:1 dyslexia support.

> "*Good things can come if you get diagnosed with it, because it will help you solve what's going up, you can find different ways of working that will help you, that work for you.*"(AA01/UG1)

4.6.2 Threat to personal integrity

At the beginning of the research I had expected to find that the emotional impact of requesting an assessment would have influenced a significant number of students. This proved not to be the case. Several students did discuss perceived threats to their personal integrity however, which closely linked to the extrinsic influences discussed in the next section.

When the i-survey was initially analysed and coded, 14 categories were created relating to 'emotions', although of these 10 only had a single respondent. Two further categories "excuse" and "confidence" had two respondents, which when considered against the 310 students who had indicated that they had considered a test represented a very small percentage. The remaining two categories had 4 respondents "denial" and 5 for "embarrassment" and included statements such as:

> *"Embarrassment and the thought that people will think you are stupid*." (BE24 /UG1)

> "*I think i would feel embarrassed if i went for a test and wasn't dyslexic as it may look like i was trying to get extra time and special allowances*. " (BE49/UG3)

Despite the small number of respondents citing this type of factor as important to them it does need to be acknowledged that both of these emotions are likely to impact on a respondent's willingness to participate in the survey, particularly in the case of denial. As such the significance of factors such as denial and embarrassment may be more significant that this study infers.

The in-depth interviews offered a better opportunity to explore emotional aspects further. It was therefore interesting to note that respondents who had not been tested for dyslexia did not really mention anything specific related to emotional aspects during

the interview. However the fact that the students who did take part were those who had volunteered for this phase may have been significant. Further analysis of those students whose response to the i-survey response had been coded under 'threat to personal identity' was therefore carried out. This revealed that only 10 of the 25 respondents who had received this code had volunteered to take part in the more probing personal interviews. The use of random number sampling meant that only 2 were invited to participate, 1 of who was then not available. This meant that there was a limited opportunity to determine how significant factors such as embarrassment or denial actually are to those who do not go forward. Analysing the two accounts separately, i-survey and interview data, allowed me to pick up on key issues, however when the two were cross referenced during the iterative phase a much deeper understanding evolved. This is described in more depth in chapter 5 and illustrates the real benefits of triangulating data.

Students who had been assessed for dyslexia talked freely about their feelings about it. One account was particularly poignant. The student shared the impact of receiving a diagnosis of dyslexia and the implications of this for what they might achieve whilst at university.

> "*It's more admitting to yourself and to others that you are not this great student, because when everyone walks into academic life it's 'I am going to be this great student' and when there is a big thing which is…. when you have it, it's 'okay, maybe I'm not that great' and accepting that it's more 'yes I have it' and then accepting it, it's a bit scary*." (AA01/UG1)

There seemed to be a common perception that things would be harder now that they had a diagnosis.

> *"it's the emotional kinda side of being diagnosed cos when you first get your diagnosis I felt like things had suddenly got a lot harder - it took me a long time to get to the point of 'well I have always had it, and I just know about it now!' but then whatever I was doing to cope with it before just doesn't work anymore, so I have got to find new ways of coping with my problems."* (AF01/UG2)

This same student went on to say that they were thinking of dropping out.

> *"I have been thinking about moving and going to a different university, that is less demanding to do a different course, to just try and get something that I can deal with."* (AF01/UG2)

In contrast, others saw it as a challenge that they needed to overcome.

"*… the status of having dyslexia didn't like come into much of any fear of having the test. I do know people who have avoided, but probably should get tested, ….I have dyslexia now, I have always had dyslexia but like there is a label for it now, yeah move on - find ways of excelling which will be good for me*." (AA01/UG1)

The notion of 'locus of control', as you would expect, affected students differently depending on whether they had an internal or external locus of control. One student stated:

"*Would like to think of my failures as my fault so I can take measures to correct them rather than accepting them due to a disability*." (BC41/UG5)

Whilst another said:

"*I think I diagnosis would give me an excise not to work as ahrd and I ould be tempted to give up earlier*." (BC48/UG5)

It appeared that these feelings were strongly influenced by what students saw as a 'label'. This had both intrinsic and extrinsic connotations. From a personal integrity perspective, students talked about the effect that a positive diagnosis would have on their self-esteem.

"*…worry that if I was diagnosed with dyslexia it would be bad for my self esteem*." (BG53/PGT3)

Prior to undertaking the research, it was anticipated that *labelling* might have influenced students but this was not really found to be the case. Where it did come across was through the 'versus codes' (Saldaña 2013) where two diametrically opposing views were expressed within the same statement. This method of coding was central to the research as it really captured the personal conflicts that students face.

"*I feel that being labelled as a dyslexic might do more harm than good*." (BA19/PGR1)

"*I wasn't sure what benefit I would get from having the label of being dyslexic*." (BC47/UG6)

Neither of these students were involved in the interview phase, meaning that there was no opportunity to explore their feelings further, but it did demonstrate that students were weighing up the pros and cons when deciding whether or not to be tested.

One student who was interviewed described the dilemma of knowing that something was wrong, but not wanting to be dyslexic. The quote below reveals how they tried to manipulate the results and why.

> "*when I got there I was really determined not to show I was struggling in the full assessment…I was just really focussed on like trying to hide any difficulty all the way through it……. as much as I was struggling, I didn't want to be….. I think I was just really split, because I just so didn't want there to be anything wrong, whilst I did want there to be."* (AG01/ UG2)

What this research has confirmed is that when weighing up pros and cons the decision can go either way.

> *"it's like 'would I rather not have dyslexia?' and of course I would rather not have dyslexia, but I wasn't scared, I was, I mean I was scared…. I didn't… I thought when I was getting tested only good things come from getting tested, so I knew wherever I was going to get to was going to be a positive result because either I don't have dyslexia, or I do and I can tackle it, but I do think it was very scary…. so yeah…. so I was scared*." (AA01/UG1)

> *"I have decided not to be tested as I consider labelling myself as dyslexic would not be constructive for me in the long run in real life I would still have to cope with similar situations as the rest of the public so any advantages now would be detrimental in the future as I would be used to preferential treatment."* (BE29/UG2)

Critical to the decision to be tested was how significant they perceived the need; if students were really struggling they were more likely to take the step and request an assessment. Where they could rationalise their problems it was likely that they would put off having an assessment, perhaps until another day, maybe forever. It was not until the students reached their 'tipping point' as discussed in section 4.5.1.5 that they took action.

4.6.3 Extrinsic risks

Although students could often see benefits to being assessed and receiving help, they were also very cognisant of the wider implications and what I labelled 'extrinsic risks'.

Following on from the section summarising their personal feelings about being labelled, students were often worried about other people's perceptions. This encompassed views on 'labelling' and 'disclosure' and often related to future career prospects if people

knew they were dyslexic. One area the research set out to determine was whether there were differences across different faculties within the university, reflecting different subject areas and future career pathways. It was therefore interesting to note that students from 7 of the 8 faculties across the university commented on future prospects highlighting that this was a universal concern.

> *"I did not want a diagnosis of dyslexia blocking any future employment/ training*." (BB33/UG2)

> "*I was thinking that employers might not like this*." (BE34/UG2)

The strength of this feeling was even more evident when reviewing survey data from a Post Graduate student. They revealed that they had struggled since their undergraduate degree, but even now 3 years into a PGT programme they still had not sought help.

> "*My 'dyslexic tendencies' became aparrent whilst I was studying for my BSc. I was never formally tested as I feared that if dyslexia were to be confirmed I would have to declare it on job application forms asking about medical history. I believe that it would compromise any job opportunities*." (BG56/PGT3)

Having identified that students from across the university were concerned about the impact on future prospects, interview data revealed that in certain professions this was heightened. One law student who had been diagnosed as dyslexic talked about how it would affect them.

> "*for me personally I can't remember all of the cases I need to learn and I'm going to struggle very…. I'm not looking forward to my exams at all, it's going to be horrendous. In terms of being a law student, definitely it is going to make it harder for me to be a good student. It may not automatically write me off but it means that I am going to have to push so hard to get the grades I want. ……especially with the field I want to go into, its highly competitive, so I am going to need to say 'I got diagnosed with dyslexia so I have mitigating circumstances for my poor' - they are not poor, they are okay, but in terms of the field I want to go into they are poor GCSEs and so I am going to have to make them aware of it and also because of the field I want to go into everything is so wordy so finding it difficult to read is kinda a major thing*." (AA01/UG1)

It was interesting that their perception was that it would make it harder. This was a student who had requested an assessment soon after arriving at university because they recognised that they were struggling. Their concerns seemed to be more around the areas that they found difficult and which they knew were key requirements of their

future profession. In theory having a diagnosis and thereby being able to access specialised support should make things easier, although they did not recognise this.

One second year law student who had chosen not to be assessed explained why they had made that decision.

> *"I do a law degree, I want to be a lawyer, and they are always going on about how important it is to spell everything correctly, and write everything correctly, and be perfect with your spelling and grammar so I am a bit concerned that if I did get tested and it did say that I was dyslexic that might go against me. ……..I have worked really hard to get into a legal career …. I just thought that maybe dyslexia would go against you because they do expect you to write everything pretty well, grammar and spelling to be perfect, I thought that might go against you. I doubt that it would but it is just one of those thoughts….."* (BA08/UG2)

There was also a concern that someone might tell them that they couldn't do something, and of implications for their course.

> "*I'm at a pretty good university somewhere I never thought in a million years I would be, and it's like I'm just waiting for the University to say "Well love, we've made a mistake", sort of thing, "You're not actually supposed to be here*." (AB04/UG1)

> "*I had come to uni with the idea of teaching Primary and… where my mathematical understanding is like zilch … I was told 'Well you won't ever be able to do that' Which I later found out was wrong, but …I've changed strands anyway……. Will that say I can't carry on at Uni*?" (AG01/UG2)

This student was also worried that they would have to drop activities that they enjoyed.

> "*Would it mean that -. Like at the moment I was doing SSLC* [Staff Student Liaison Committee], *well if I had some sort of … actually there's this report and it says officially you can't … do this and you're struggling here… I felt that I put that on myself and I was only going to be able to do the modules, I wouldn't be able to anything kind of fun at uni it would just be uni work*." (AG01/ UG2)

The final significant finding under extrinsic risks surrounded other people's opinions of them. Some students were concerned that they would be perceived as 'stupid' and that others would expect less of them.

> "*the thought that people will think you are stupid*." (BE24/UG1)

"*It could have been diagnosed at school but I think it was one of the best things in my life it wasn't as I think teachers would have expected less of me and I wouldn't have pushed myself as hard to get the grades I did I would just think I couldn't because I had dyslexia or dyspraxia*." (BC48/UG5)

Others were worried that there might be a degree of scepticism regarding dyslexia.

"*Feel that a lot of people claim to be dyslexic but have not actually been assessed so worried a people will not take it seriously*." (BC03/UG1)

"*I thought people would judge me an say that I was over exaggerating and attention seaking for being an awful speller*." (BC15/UG2)

None of these students had gone forward for a test; but one student who had, talked about the reaction they got from their tutor when they first expressed their concerns.

"I said I've got – 'You know, I think I've got Dyslexia' I hadn't spoken to Learning Support, and it's sort of like she rolled her eyes sort of thing and I thought oh right, ok, you know. It's sort of like as if to say 'Oh right, you know, ok if you want to say that this is the in-thing to say sort of thing at the moment, extra time and everything like that.' Which made me feel mmm you know, and then I sort of 'Ok, I won't say any more about it' sort of thing." (AB01/UG1)

4.7 Practical issues

From a purely quantitative perspective one of the most notable areas emerging from the i-survey data surrounded practical issues. These revolved around finding time; the cost; knowing where and how to request an assessment and finally for a small number of student's issues surrounding the process of assessment. These will now be considered in turn to reveal the concerns expressed by respondents.

4.7.1 Time

In total 43 students mentioned time as an issue within the i-survey. The major factor appeared to be the amount of time required to take the test, with 9 students specifically stating that the test 'takes a long time'. Others just mentioned that they had 'not had time', which implies that they acknowledged the amount of time required.

For some students finding time to be assessed was closely linked with perceived need. One student stated:

> "*I didn't think my problem was bad enough and the tests take a lot of time and are expensive* "(BG43/UG 3)

Whilst another said:

> "*I did not want to take time out to be tested and I was not convinced that I could have it*."(BC27/UG 3)

One student who took part in the interviews elaborated further on how much time they were willing to invest.

> "*If in the future I was offered testing, if it happened to be quick and easy, and it was like this interview, coming for 30 minutes will do it and it will be done…. the same as a personality test, I would be more than happy to do it, and it would just be whether it would fit in with my timetable that day."* (BF10/UG1)

As time is precious for most students; the potential waste of their time, or the time of others, if the test came back as negative was also an important factor.

> "*I'm worried that if I'm not dyslexic it will be a waste of time resources and it will look bad on me*" (BB08/UG 4)

> "*didn't want to waste people's time being tested when it's probably me being a hypochondriac*." (BC30/UG 4)

Although students perceived the test as lengthy they appeared to only be considering the time required for the in-depth assessment; which would only be triggered if an initial screening indicated dyslexia as likely. The online screening test takes most students approximately 20 minutes to complete and is completed at their convenience via an emailed link. As such it does not really represent a significant amount of time, however students did not appear familiar with the process and it was evident that this was deterring some students. A lack of understanding of the process and the amount of information available was a key finding of the research, although most students acknowledged that they could have done more to find out. It appeared that this was strongly linked with perceived necessity; if students did not view dyslexia as likely they had in the most part not bothered to seek out information, conversely all of those who had been assessed had located the information they required.

4.7.2 Cost

Students were also deterred by what they perceived as the cost associated with an assessment; with 46 students specifically mentioning that cost had prevented them from going forward to be tested. This was particularly interesting as at the time that the i-survey was live the university offered the screening free of charge. It was only if the student was referred on for the full assessment that they were asked for a £50 contribution towards the cost. There was also the potential in cases of severe hardship to waive this cost, meaning that cost should not have precluded any student from being tested. In most cases students did not expand on their answer within the i-survey, meaning that it was impossible to establish what they understood the costs to be. However the relationship between time and money was clear, with 8 students stating both as key factors. This was particularly significant if they perceived the likelihood of dyslexia to be low.

> "*Thought there might be high costs to be tested probably to find out I don't have dyslexia*" (BB04/UG 1)

This was illustrated clearly during an interview with a 1st year student on a Post Graduate Taught programme. Early in the interview they had identified that they had previously considered being tested predominantly due to problems with spelling. At the time they had felt this might explain why they had difficulties, but as they had coped they had decided not to do anything about it. During a discussion about whether they had any concerns about being tested in the future, should the need arise; they identified what they would consider a reasonable cost to find out.

> *"As long as it wasn't like costing lots of money or taking up lots of my time, ….. I think there's a bit small, very, very small chance that I'd have it. …. Therefore if I wasn't doing anything on a particular day and maybe if they brought it, maybe if you could get tested at the University, so it's easy to get to. And maybe it was only, I don't know,… £5/£10 maybe I might do it. 'Cos it might – I don't mind spending that on something random.. but if it's quite expensive and takes up a whole day, maybe then it's not really worth it for me, 'cos I think I have it….. but I didn't realise you had to pay. I thought it might be NHS sort of thing like that."* (BG37/PGR3)

This revealed a poor level of awareness of the cost involved, also evident in many other students. Analysis of i-survey data also revealed that in the most part students had obtained what information they did have from other students.

"*I was told by people that it would cost money*" (BB30/UG2)

"*I heard it is very expensive to get tested*" (BE25/PGR2)

Only one student had clearly investigated getting an assessment done and quoted the rate charged by an outside organisation.

> "*I did not know it was possible to have a free screening. I was only aware of dyslexia test with the Institute of Dyslexia … and to my knowledge it was approximately £400*" (BE02/PGR year unknown)

The interview phase offered the opportunity to further explore students' feelings about the cost and identify what they viewed as reasonable. It became apparent that where students perceived a greater need they could justify the cost more easily. One student, who had gone on to be tested, talked about the fact that when they had done an initial screening the results were borderline, which meant they were not initially recommended for the full assessment.

> "*I was really borderline and the University said they didn't want to do it, whereas if I had been doing it myself I might have thought well if I am that close, particularly as the questions that they asked in the initial screen were like all reading and writing and things like that, I thought well like that's not what I struggle with .....so I think if I had been doing it on my own I might have gone for the full screening earlier, because I have always felt that I have wanted to have the full screening after I had done the initial one, but I just didn't know how I would go about it and also the cost, if I had known how to do it I think the cost would have been off putting as well."* (AF01/UG2)

However, in light of the fact that they continued to have problems, and in their view "got worse" they returned to Enabling Services and were put forward for a full assessment. When asked if the £50 contribution towards the assessment made a difference they replied:

> *"well I had got to the point that it's got to be done. £50 is not a great sum of money if it comes back with yes you are dyslexic and you'll get access to all the support and the stuff that goes with that, it's not a large sum of money, and I had that money so I thought you don't lose anything other than the £50 if it comes back as no so*…. (AF01/ UG 2)

Some students were aware that the university offered a heavily subsidised assessment, and had been waiting to start university to access this. One student who themselves had been tested for dyslexia in their first year also talked about two of their friends.

> *"I've got…. two dyslexic friends who both of them were tested after arriving at universit, so one of them I know she was I would say she is quite severely dyslexic because she can't… she can't spell and all the rest of it, she said like when she was in sixth form that she was kind of aware that she was dyslexic but her sixth form wouldn't test her because of the cost, so she had to wait until she got to university to be able to be tested because of the cost*. "(AF01/UG2)

This revealed that uptake at university may be affected both positively and negatively. For some the perceived cost was a real deterrent; but for others, who were aware of the contribution required, it provided access to full assessment at minimal personal cost.

Whilst analysing i-survey responses where cost had been identified as a factor, I also became aware of a real research dilemma. One student had written:

> "*This is caucase it is too costly. I often think I may be dyslexic however I have never had the money to take the test. Is there a way I can tested without expense*?" (BE67/UG4)

Reading this after the survey had closed was difficult and triggered a period of personal reflection on the relationship between researcher and respondent and lessons to learn for future research. In this instance there was no scope to provide the information the student was asking for as the i-survey was anonymous. Had this arisen within an interview situation there would have been scope to have answered it at the end, once the data collection was complete. From my perspective, I had included a statement within the participant information at the beginning of the i- survey stating that if participants had "any questions regarding any aspect of the study please do not hesitate to contact me" and then gave my e-mail address and phone number. However, in this instance, as the question was not specific to the study, the respondent may not have felt it appropriate to use these contact details. This has alerted me to the importance of providing a contact for students to obtain more general further information/advice in any future research on a similar topic.

4.7.3 Information

One surprising finding, and the single most cited factor, was that 84 respondents declared a lack of information as being a reason why they had not gone forward for a

test; although some did acknowledge that they could have done more to find out. Of these 60 respondents replied that they either did not know how (n=44) and/or where (n=23) to be assessed.

> "*Did not know who to contact or where to go*" (BC03/UG1)

> "*It is hard to know who to see and I feel it is difficult to speak to people about it*" (BG46/UG3)

The other 24 respondents were not even aware that there was the potential to be tested, with comments such as:

> "*It was never offered to me*" (BA07/UG 2)

> "*I didn't know it was available to me*" (BG31/UG 2)

> "*I wasn't sure if it was something the university offered as I hadn't heard of anybody being tested. Although I admit I could have perhaps done more work myself to find this out. I would very much like to be tested*." (BE38/UG 2)

The lack of awareness of availability of testing, or how/where to get this done spanned all faculties of the university. It clearly demonstrated that despite information being provided by the university, from the student perspective this is either not enough or not reaching them.

There did appear to be a strong relationship between their perceived need and the search for information however. Several students who had been tested during their time at university talked about how they found information quite easily. It may therefore come down to whether someone thinks that they might be dyslexic and therefore seeks out information as opposed to those who do not engage with the idea.

> *"Even though my research was brief it was thorough, so I knew exactly what the university provided…yes… it was easy to access for me, I found it quite easily."* (BF10/UG1)

One student had even done intensive research prior to commencing university.

> *"I looked at your websites first, before I started here, to find out information about it. And I also, on your Open Days you have you know done a little stall, which you know I came to and got some information. I came two years running, so I had like lots of [laughing] information- two years running thinking I will be here one year."* (AB01/UG1)

Despite this student finding what for them was sufficient information, another student from the same faculty specifically requested information at induction or the open days.

> *"Maybe at open days and things like start of the courses, you know they could have like a stall or something that tells people, I don't know if they do and I just missed it, that tells people about if you do struggle with anything…."* (BB17/UG2)

The key difference here appears to be that the first student had attended an open day where student support was specifically referred to, but this appears to have been omitted on the day that the second student attended.

Students also discussed the fact that they did not know exactly what the assessment involved. Whilst most students were not particularly bothered by this for one student it denied them a chance to 'practice'.

> "*when I got there I was really determined not to show I was struggling in the full assessment…. I was just really focused on like trying to hide any difficulty all the way through it. … I think in retrospect it would have prepared me, I think, had I been given more information… because …. … So if they'd said "Well we'll test this by doing this", I'd have practiced …to try and avoid that I couldn't do it!"* (AG01/ UG 2)

For this student the desire to practice was an attempt to influence the findings of the assessment which has previously been discussed in section 4.6.2.

4.7.4 Assessment Process

The final group of findings related to the practical considerations surrounding the assessment process, either in terms of delays in being tested or the process itself. As with most of the themes emerging from the research there was overlap with other themes, demonstrating the multi-facetted decision making process for students. However, for the sake of clarity findings will be presented here purely in the context of the process.

Within the group of students who had been assessed for dyslexia at university, 4 out of the 5 had sought an assessment soon after starting. In many cases this was to confirm a long held suspicion but on occasions there was more to it. One mature student who was tested within 1 month of arriving told me.

> "*I've always had an inkling, from when I was probably at school, but being my age it wasn't sort of like recognised at school. It wasn't until a couple of years*

ago when I went to a further education college …it was sort of picked up" (AB01/ UG1)

They went on to say that following a 'mini-assessment' they were told that they could possibly have dyslexia but that the college could not confirm it.

> *"That was you know the start of …you know, deep down I think I knew I probably had some sort of problems, and that's where it started from really…….I could have got myself diagnosed privately but it's so expensive to do it ….Then obviously coming to university I had the option to do it here at a slightly reduced rate, well lot reduced rate, and obviously it helped me a lot so far with my studies. So you know; it's the best thing I've done really to be honest*". (AB01/UG1)

During the interview this student also talked at length about her frustrations in trying to get help for her children who were struggling at school. Like her they had been given a mini assessment and in her words were "showing symptoms" but did not have a formal diagnosis.

> *"I would love to be able to get them… the extra help that they need at school, ….. I'm probably sort of going through it so I can teach them really. .* " (AB01/UG1)

Again this demonstrated the complexity of the decision making. In this instance the student had recognised their own need whilst at school, had managed to have a mini-assessment whilst at a Further Education college but the final impetus appeared to come when she felt her children needed help. By undergoing an assessment herself she considered that she would learn how to help them.

Another proactive student discussed 'falling through the net' at a period of high demand.

> *"When I very, very first started Uni, I made an enquiry about Dyslexia screening, I sent an email…and they sent back, 'We're inundated' , like an automated reply. 'If you don't hear from us in a few weeks, then don't worry, you know, it will take time' and I never did hear back from them. So I had to go, it was like at the end of that Christmas, it was like going back and saying 'Actually I've not heard from you.' …that was a real hurdle for me." (AG01/UG2)*

Having previously identified in section 4.6.2 that for some students there is a significant emotional hurdle to overcome in requesting an assessment; this student's account highlights the impact it has when an initial enquiry is not responded to.

Several students talked about how at other universities students get screened automatically on admission.

> *"one of my friends …. she didn't go to this University…. they get screened automatically, so every new student going in gets screened. And that was how she was diagnosed. And I think … that was a bit better. It's a much, much, much smaller Uni, but it it's kind of a better approach*. (AG01/UG2)
>
> *"It was good, it's offered to everybody. I think that's the way to go. It wasn't…. It doesn't have to be singled out! [chuckles]….to have a finger saying you know, "You look a bit strange, why don't we screen you? So that was positive….."* (BG38/PGR3)

They appeared to consider this a good idea. It is likely that the screening they are referring to uses self-administered questionnaires, which vary in length and complexity, which in itself raises issues. Results generated through self-administered screening questions were mentioned specifically by one student interviewed from group B. They had completed several on-line tests whilst at university but had never had a formal screening or assessment carried out.

> "*You know you can do that on-line ones, but sometimes they said, "Oh you know, you might have tendencies towards it…. I think I've done … a few of my tests [laughing] in between, but I think they've all been whilst I've been there at University*." (BD08/PGT2)

When asked why they had done more than one they replied:

> *"I sort of did one and sort of -. It will say oh yeah I've got tendencies, and then I'll sort of forget about it. And then another time it would come up and I'd think 'Oooh, I'll have another look and it would come up with something different. And I thought 'Oh well!' 'Maybe not then!' So, yeah.. but I've never sort of taken it seriously because it's never been a big enough problem to take it seriously. I've always managed to get through. …. I think if I was doing really badly, then I probably would have taken it [chuckling] a lot more seriously" (BD08/PGT2)*

For another student being able to do a self-assessment would give them scope to 'cheat' the result.

> "*There is a little checklist you can do, if they had that on there, that would make it easier….. if you are less inclined to admit there was something up with you, you might just (sharp intake of breath) 'no I'll just put slightly agree' or something like that and then your results might come down, which means you wouldn't get tested*." (AA01/ UG 1)

4.8 Influence of others

The final domain revealed through the research was that addressed through research question 9. This was designed to specifically examine the part that other people might play in the students' decision making. Both the i-survey and the individual interviews revealed that friends/family, but more significantly academic staff, have a strong influence. These were mainly encouraging positive influences but in some cases the influence of others acted as a deterrent.

4.8.1 Positive influences

In terms of the positive influence of others it was noteworthy that in the case of all of the students who had gone on to be assessed, it had been suggested by a member of academic staff.

> "*I think it was picked up in a few classes, and then she sort of like said "Well I think you should go and see Mrs [X] and talk it over with her.*" (AB01/UG1)

> "*In October we had a one-to-one sort of introduction with our academic tutor. She then was like talking to us how we learn; how I did on my Access Course and it was her suggestion that I went and got tested.* "(AB04 /UG1)

These students had clearly responded to the suggestion. In contrast comments from group B students revealed that however strong the encouragement they received, if they were not personally ready to consider the possibility that they would ignore the advice.

> "*I haven't got the C in Maths at GCSE. So I did an adult numeracy thing and there the Tutor said to me ……'When you get to Uni, think about it, go and see what options there are'. And I didn't. What's the point? You know, I've been in the workplace … not quite 15 years, but just under. I was like … really, what's the point?*" (AG01/UG2)

> "*I thought I was been paranoid despite being advised to have the test*." (BC47/UG6)

For others though it had not been considered and may have provided a useful prompt.

> *"I never assumed I was dyslexic until I came to uni then my tutor and the SLA [Student Learning Advisor] have picked up that I easily get my words jumbled/mixed up when writing an essay but I can spell ok...So for this reason I hadn't thought it as a priority."* (BB39/UG2)

Until recently I never gave it a thought but my Tutor mentioned in my last one to one because I said I sometimes found it hard to take text in and often find myself reading over it again. (BB29/UG2)

4.8.2 Supportive staff

In some faculties there were staff who were considered by the students to have a special interest in dyslexia. It was unclear as to whether this was an official part of their remit, or merely a personal interest; but irrespective of this their impact was significant. One student who had not been tested for dyslexia described a particular tutor in their faculty.

"*He is … known as a Senior Tutor for being someone who suggests stuff like that. So it's, it's a well-known trait of his that he looks to seek out Dyslexia in students and help them….. I think probably he has some sort of interest in making sure people don't struggle without … without need to*" (BF10/UG1)

4.8.3 Negative influences

One slightly surprising finding was amount of reliance students placed on academic staff identifying a potential problem. Within the i-survey 18 students made specific reference to not having had it suggested by staff or been encouraged to be tested. In some cases this involved those marking their work.

"*I figured if I was it would be apparent to the markers and referral for assessment made if needed*." (BB55/UG 3)

"*My feedback from assignments has never indicated that I have a learning difference. ……I have just kept going and assumed tutors would have picked up any difficulties if they were significant*." (BB54/UG3)

Students also mentioned it in more general terms.

"I thought if I did have it my parents or teachers would have noticed." (BC08/UG1)

"*Because I was never told that there was a problem by my teachers*." (BC42/UG5)

However, perhaps the most revealing answer came from a Post Graduate Research student.

"*I think during school people were selected for tests - you didn't volunteer*." (BE06/PGR1)

As the university system of self-referral is very different to that which students have previously been used to, it becomes less surprising that students were waiting for others to take the lead. The consequences of this reliance on a prompt from others were significant however and needs to be addressed.

Finally, although only mentioned by one student and therefore representing a lone voice, one response really stood out during analysis as reflecting the powerful influence of others. The student concerned gave a very succinct but compelling rationale in their i-survey response for not going forward to be tested.

"My mother persuaded me not to!" (BC23/UG3)

Throughout the research I had been particularly interested to see if there were differences across different faculties, which will ultimately require different strategies to support future students. The fact that the student concerned was studying medicine may or may not be significant, but is an area which would benefit from future focussed research.

4.9 Pulling together the ideas

The previous sections of this chapter have shared a wealth of data generated from the 674 completed questionnaires and 11 follow up interviews, initially through analysis of the quantitative scoping data and then through the more in-depth qualitative data. As the research moved into the final stages, data from both phases were synthesised and are presented in a concept map of influencing factors, (Figure 9). This displays the sub themes visually demonstrating how they interrelate, along with the frequency with which each factor was cited. Within the diagram frequencies are displayed as (S=5; I=3) where S indicates that 5 survey responses have received this code and I=3 reflects 3 interview participants. Where appropriate interview figures are then further subdivided into group A and group B as depicted by IA=3, IB=2. Appendix 19 also displays these frequencies in table format for ease of reading.

4.10 Chapter summary

This chapter has presented findings from both phases of the research and through these has been able to answer the research questions it set out to address. It has provided

evidence that a significant number of students, 51% of those responding to the survey, who had not previously been diagnosed as dyslexic, had considered being tested. Demographic information relating to which faculty these students were from, the type of programme they were studying and what year they were in has been revealed. The chapter also shared qualitative findings, revealing a variety of factors which influenced individual decision making, although most were common across a number of participants. In the next chapter these findings will be discussed and contextualised in the light of available literature.

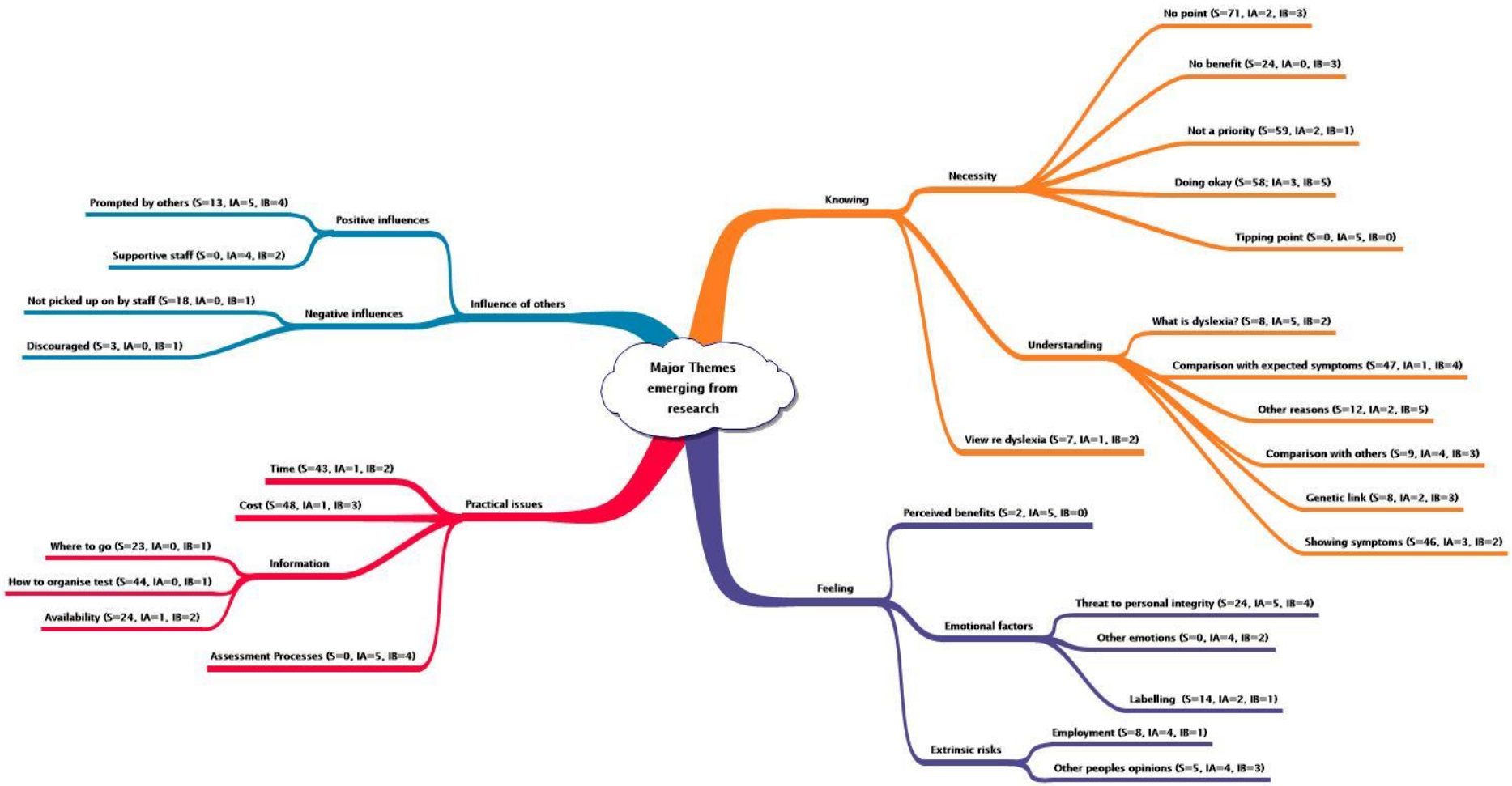


Figure 9: Major themes emerging from the research

Chapter 5: Discussion

The intention of this research was to '*explore factors which influence university students' decisions whether or not to be tested for dyslexia'.* The previous chapter shared the wide range of influencing factors identified through the research. This chapter demonstrates how the findings were synthesised to reveal three key areas which were pivotal in the student's decision making. These were explored and contextualised within the existing body of knowledge through a modified form of 'Elaborative coding' (Saldaña 2013) (see Table 18). In its true sense this technique is normally used to refine theoretical constructs from a pre-existing study, in the light of evidence gained through new research. However, within this study it was incorporated as part of an iterative process. Explanations were constructed for what had emerged, clearly identifying the contribution that this study has made to expanding the body of knowledge. The following areas are those identified as instrumental in either encouraging or discouraging the student from going forward to be tested, (see figure 10). The remainder of the chapter will confirm why these factors are important as they build towards the conceptual model.

Factors which encouraged students	Students needed to reach what for them was a 'tipping point'
	Students were experiencing difficulties that they could no longer ignore
	Their level of difficulty was recognised by others who encouraged them to seek help
Factors which discouraged students	Students did not perceive being tested as necessary
	Students had a very poor understanding of dyslexia and therefore did not always attribute their own difficulties to the condition.
	How student perceived their academic success, both on their current programme and from previous experience, was fundamental to them acknowledging that they might be struggling.
	Students often compared themselves to people who they knew were dyslexic. This could lead them to reject dyslexia as a possibility if they did not perceive their problems as being as severe or if they exhibited a different pattern of difficulties.

Figure 10 : Key influences that encouraged or discouraged students

5.1 Tipping point

From the data displayed in figure 9, at the end of the last chapter, it was evident that there were a myriad of reasons why students decided to go forward to be assessed or

chose not to. The notion of reaching a tipping point emerged as being highly significant, along with the feeling for some students, of teetering on a precipice. The following quote, from a student who had decided to be tested since commencing university, very eloquently captures the range of factors involved. Immediately before this quote the student had been talking about seeking out information.

> *"I found pretty early on the enabling services part of the websites but to find that was a bit, you have to admit it to yourself that - I don't know if it's about stigma, of a way of having to go into the separate exam room - that sort of thing then I thought 'man up a bit - you've got to!'…. I need to go to enabling services, it's just like the way it sounds, it sounds very daunting….. I know it sounds friendly but cos I didn't want to admit that there is anything wrong with me, because there isn't anything wrong with me, but before like you fully understand what dyslexia meant, it was more like teetering on the edge - it's like 'take the jump!' It's very daunting and that could put people off, to actually take the step it was a very scary moment, to say help me! What's wrong with me?"* (AA01/UG1)

This quote has been included here, rather than in chapter 4, as it really captured the personal turmoil that the student was experiencing, synthesising many different themes. On one hand the student recognised a need, but they really did not want to acknowledge it. This led to my assertion in Fig 10 that students needed to be experiencing difficulties that they could no longer ignore. Admitting to themselves that they needed help was a major step, and one that they had to take before they could go forward.

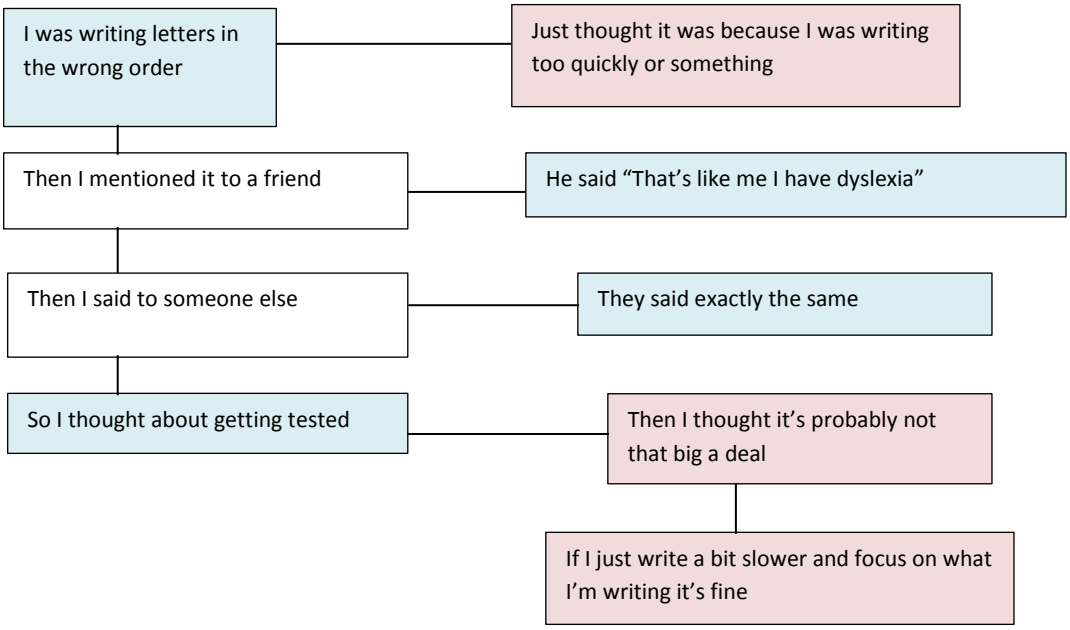
From analysing all of the data it was evident that this sense of need was a key factor. The reasons that underpinned it varied slightly from student to student; and many of the group B students had still not got to the critical point. What emerged very strongly however was that students had to be ready to know. As an educationalist this resonated with what I knew about adult learners and reflected the work of Rogers (1951, 1969) and Knowles et al (2011) when they talked about 'self-initiation' of learning or 'readiness to learn'. Having established the importance of students being receptive to the idea that there was an 'issue' I revisited the qualitative findings through a subtly different lens. This highlighted the frequency with which students suppressed what were often quite strong cues, because they chose to attribute these to other reasons.

Having identified this, I needed to understand more about the underlying psychology. This led to a more detailed examination of '*help seeking'*, '*Attribution Theory*' and the '*Theory of Planned Behaviour*' which were introduced in chapter 2. The initial literature review had revealed that when faced with a negative event, individuals seek an explanation for why it occurred, in an attempt to avoid future repetition. The focus turned to whether it was possible to identify if the students had experienced a negative

event, and if not to identify what had triggered their behaviour. Implicit within this was a re-exploration of what meaning students attributed to certain events. Data from both the i-survey and interview phases were re-examined. The following vignettes illustrate different sets of circumstances that prompted (blue boxes) a feeling in the student that maybe they should seek help. The pink boxes demonstrate how this feeling was often supressed when the student attributed their difficulties to other factors. In each case what was often a long account has been abridged, to emphasise their reasoning, but the words are the students own. The first 3 students had chosen not to be tested, although they had considered it; whilst the final 2 had been assessed at university.

5.1.1 Student BA08

The first illustration relates to student BA08, a 2nd year undergraduate. At the time of the interview they identified that they had experienced some difficulties, but had chosen not to be assessed. Early in the interview the following line of discussion emerged.

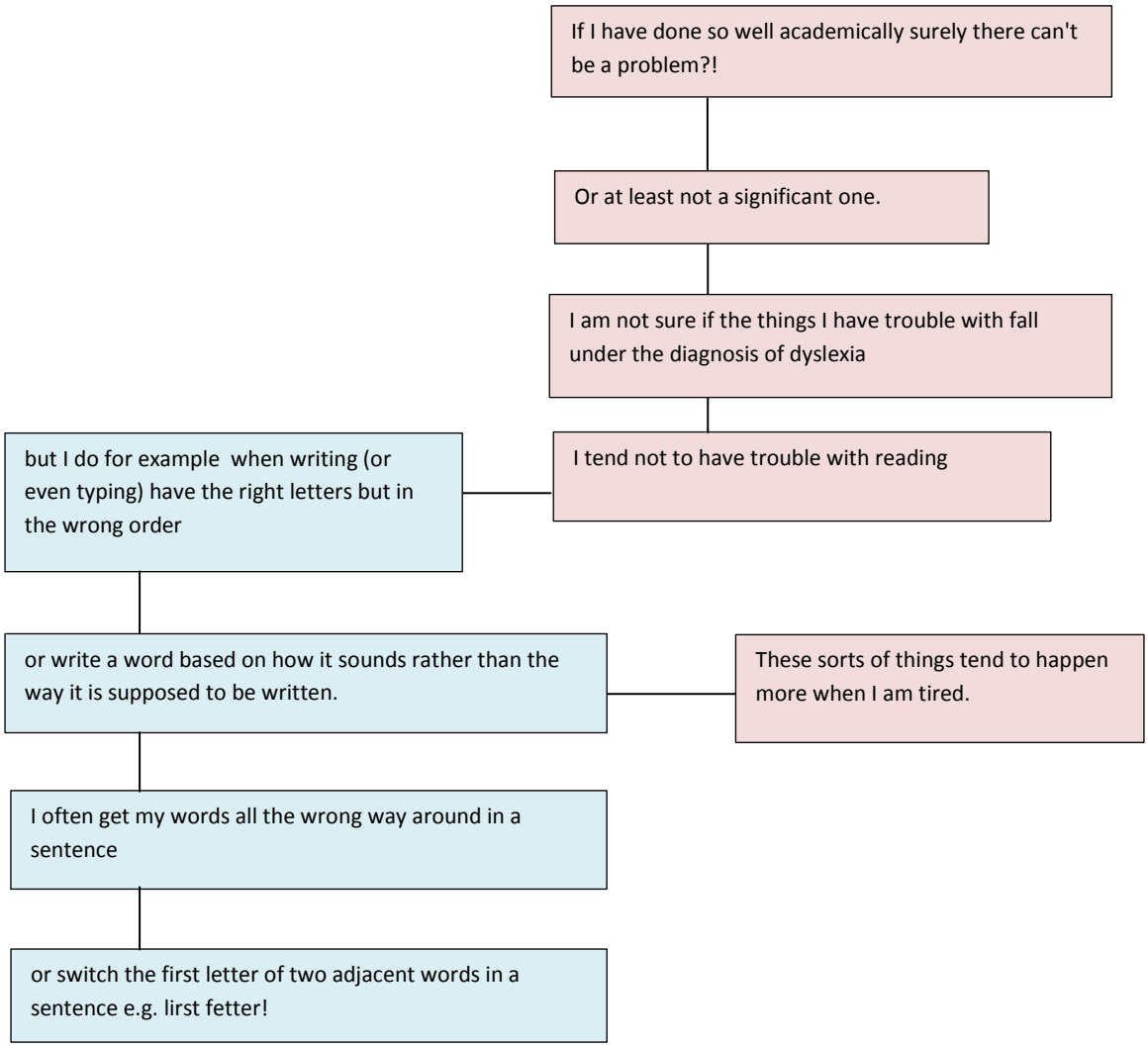


It was evident that despite some significant cues that they were still holding back. It was particularly interesting that they had sought multiple opinions, but had still chosen to ignore them. Further exploration revealed that this was because of their intended career as a lawyer. During the interview they had talked about the requirement to be able to spell correctly to enter this profession, and this appeared to be what had held them back. Another factor which had played a part was them comparing themselves to a sibling, who was known to be dyslexic; but who the respondent saw as being much more severely affected. The key influence however, was that this student was succeeding on

their course and had therefore not reached their tipping point. The indicators present were relatively recent and were not impacting significantly on the student at that time. The student did state however that if they continued they would get tested.

5.1.2 Student BC32

The second student demonstrating attributions was a 4th year medical student. In this instance they had not volunteered for the interview phase but gave a detailed account within their i-survey response. As this student was not interviewed it is impossible to know if like BA08 their choice of future career also held them back, but their academic success appeared to be the key influence.

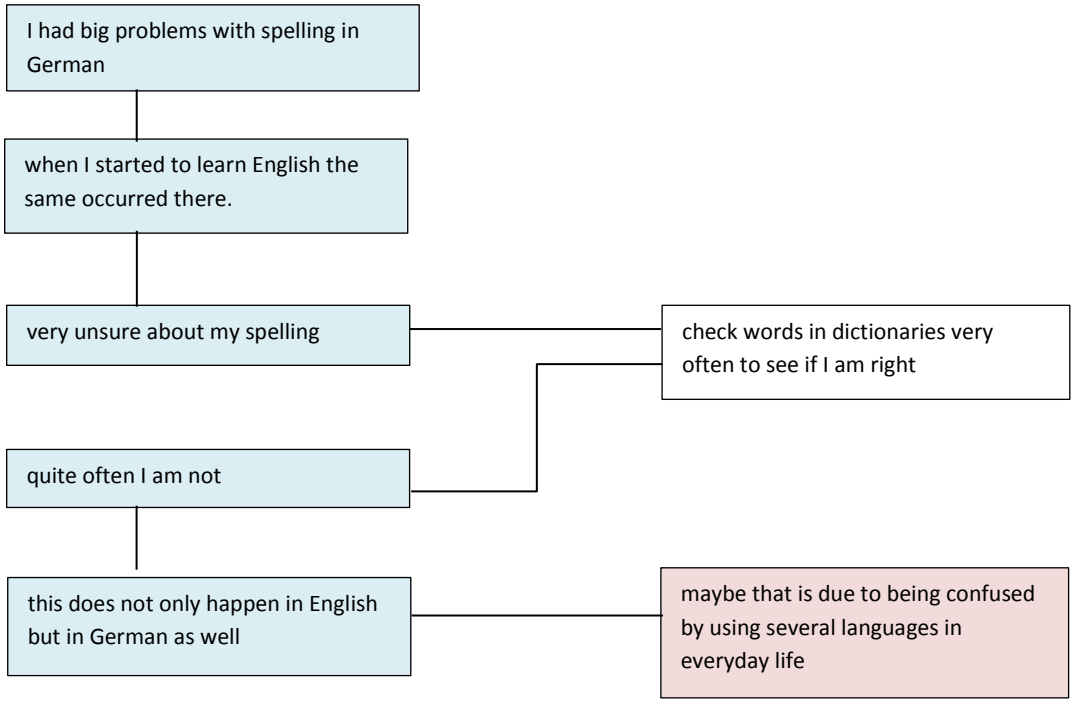


The fact that the student was doing well academically meant that the usual trigger of a negative outcome identified by Weiner (1985, 2010) had not occurred. Therefore, despite a range of 'symptoms' frequently associated with dyslexia, the student was

happy that they were achieving, and chose to ignore them. The fact that they were uncertain as to what dyslexia encompassed may have also been a factor; but because they were succeeding there was no impetus for them to explore this further. The suggestion that their difficulties could be due to tiredness was also an interesting causal ascription.

5.1.3 Student BE52

The last student who had considered being assessed, but who also decided not to proceed was a 3rd year undergraduate whose first language was German. As with the previous student the narrative below is drawn from their i-survey response.

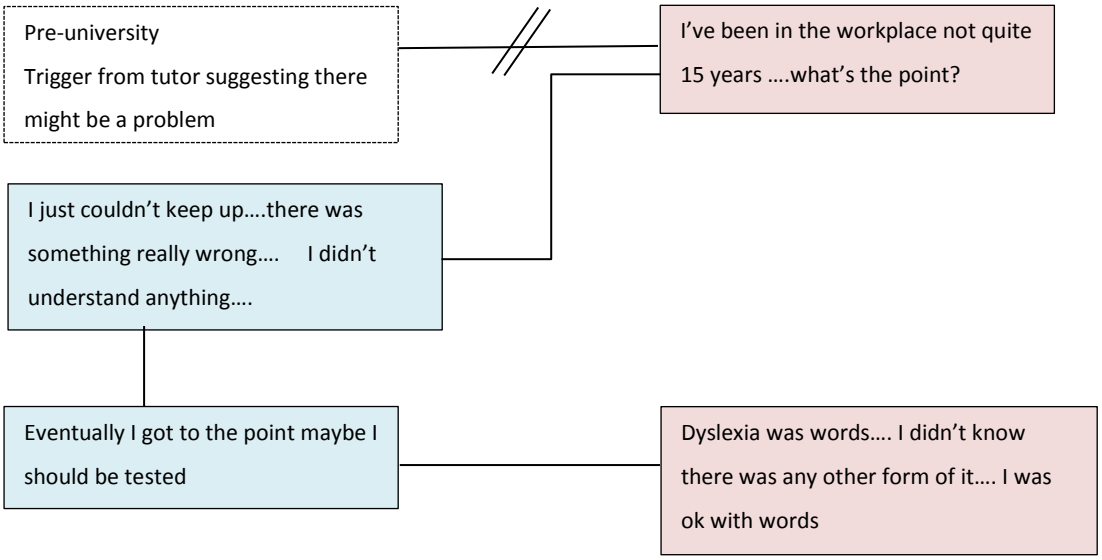


In common with the previous examples, there were a series of strong prompts within this narrative. These were rationalised by student who blamed the transition to a second language. The fact that they also experienced difficulties in their native tongue suggested however that there may be an underlying issue. As the student considered that the strategies they had developed were helping them to succeed, they had also not reached the point where they were sufficiently motivated to seek an assessment.

In the case of the following two students the situation was different. They had sought a dyslexia assessment since commencing university although their vignettes demonstrate that they also held back initially.

5.1.4 Student AG01

This student, a second year undergraduate, had been assessed and subsequently found to be dyslexic. The initial suggestion that there might be a problem had come from a tutor on an adult numeracy course which the student had completed just before starting university.



Although the quotes above only illustrate a small part of the discussion, the strength of the suppression and the reasons behind this were powerful. Although a dyslexia assessment had been suggested again, almost as soon as they entered university, the fact that they had succeeded in the workplace convinced the student that there was nothing wrong. It was only after Xmas in their first year, when ongoing difficulties led them to acknowledge that they were not keeping up. The student then talked about getting an assignment returned where the lecturer had said "I expected more from you". This was the final prompt and led them to feel that they <u>had</u> to be assessed. They explained that they really hadn't wanted to however and that they still regretted it.

This was a particularly interesting revelation, as both my previous experience and the literature suggest that once students take the step to be assessed, that they are usually very positive about doing so. As students frequently compare experiences it was important to understand why they still viewed it negatively as it could impact on other students going forward.

For this student it was a combination of factors. They talked about it being formalised and now official; suggesting that before if no one knew you were struggling it was okay. They also worried that they would now not be "allowed" to do the extra-curricular

activities that they enjoyed; but would be forced to just focus on the academic side of their course. The most significant factor however was the language of the report and the scores that they achieved. In particular they were distressed by the fact that they were placed on the 5th percentile for processing, and that this meant that 95% of people were better than them. Their perception was that there was nothing positive in the report, and their initial reaction was to leave university there and then. Fortunately, a supportive tutor intervened and turned things around, but in the students own words "If I hadn't spoken to the tutor I would have left uni… that was it!"

Although this study did not set out to explore how students felt about being diagnosed with dyslexia, the importance of this student's feelings was noteworthy. Over the years there have been several studies exploring the impact of a dyslexia diagnosis on adult learners, (Farmer et al 2002, Cowen 2005, Pollak 2005). In addition, Riddick et al (1999) and Carroll and Iles (2006) focussed on ongoing emotions associated with being dyslexic. All of these studies highlighted the impact of dyslexia on self-concept; and the sense of frustration, and at times anger, that it had not been recognised before. They also revealed the feeling of relief often experienced by students on learning that there was a reason behind their difficulties.

More recently, Ryder (2016) explored student's views about the assessment process itself, although she did not really focus on how students felt about being given their results. Receiving detailed test results and in particular centile scores, is likely to have an impact on the student, as evidenced in the vignette above. As this may in turn influence students giving advice to peers contemplating an assessment, it is an area which would benefit from future research.

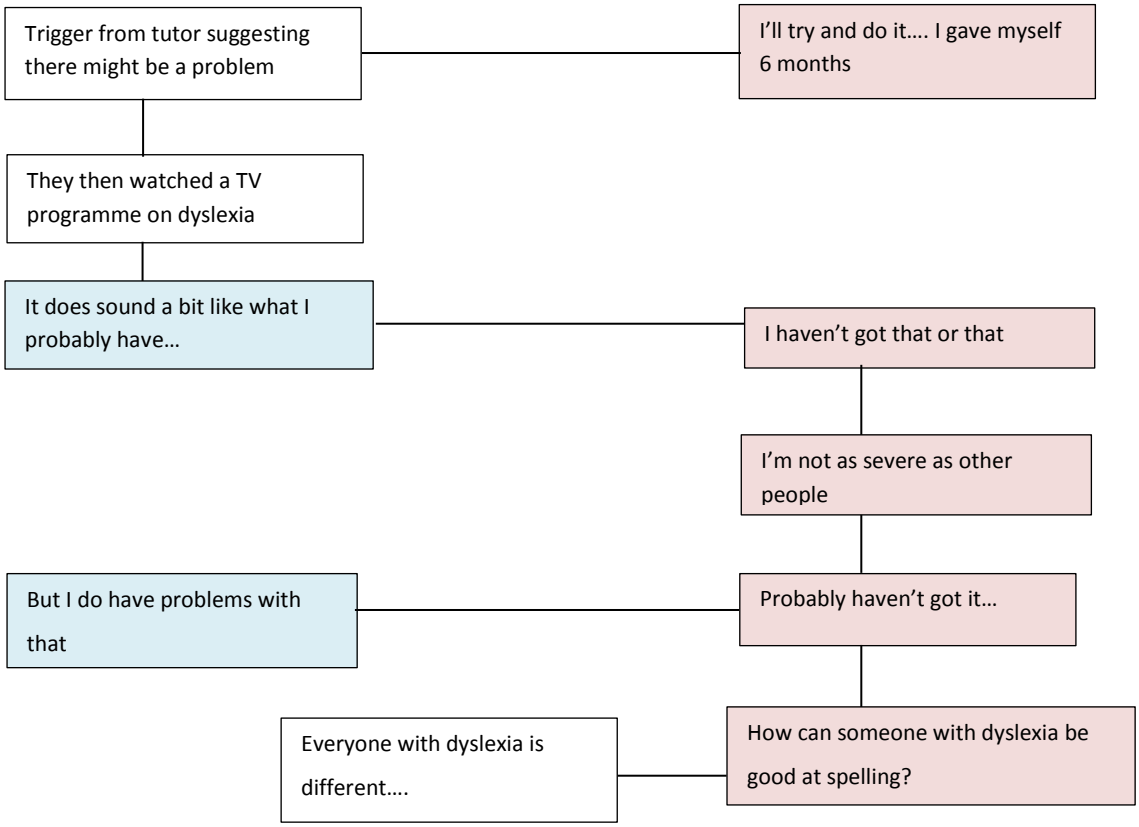
Analysing this student's narrative in the light of attribution theory (see also section 2.5.3 and 5.2.1) was interesting. Here the causal ascription appeared to stem from the centile scores which the student interpreted as confirmation of poor ability. As they perceived this as something outside of their control, and which could therefore not be changed, there was a significant psychological impact. Weiner (2010) identified that this often leads to behavioural consequences and could result in the student dropping out. The student's story highlights that this had been a very real possibility.

The notion of how stable something like ability is was also interesting. A quick internet search revealed in excess of four million hits in response to the question "can you increase IQ?" Without delving too far into a potential minefield of opinions, which in many cases were commercially driven, it is important to recognise that dyslexic learners benefit significantly from targeted teaching strategies, (Vygotsky 1978; Pumfrey and Reason 1991; Silliman and Wilkinson 1994; McLoughlin 2001; Turner 2002; Peer and Reid 2003). It is therefore imperative that this is stressed to students receiving results of

a dyslexia assessment in order that they do not become disheartened and abandon their studies.

5.1.5 Student AB01

The final illustration comes from a first year health sciences student who was also prompted to go for a dyslexia assessment soon after arriving at university, by their academic tutor. As with the previous student this student was initially not receptive to the prompt, choosing instead to give themselves 6 months to see how things went. This was despite the student admitting that they had known at school that there was 'something', but that it (dyslexia) was not recognised at that time. This had deterred them from continuing in education post compulsory schooling; but eventually they returned to a Further Education college where they were given a 'mini-assessment'. Although this had indicated dyslexic type difficulties it was not a formal diagnosis, and therefore no support was offered. For this student the trigger came as a result of an increased level of awareness predominantly from a TV documentary; and as a result of being offered a subsidised test.



Their account shows that although there was a degree of recognition, the absence of certain expected symptoms; or the fact that these were not as severe as in others with the condition, was critical. This was a theme that emerged strongly throughout the research.

5.2 Evaluation of existing theoretical models

The scenarios depicted in the previous section, along with the findings presented in chapter 4, highlight that overall the students had a very limited understanding of dyslexia. Furthermore, the subsequent failure to recognise how it may manifest did, on occasions, deter them from requesting an assessment. Fundamental to both areas however was an acknowledgement by the student that they needed help when they reached their 'tipping point'. Until this was reached their tendency to suppress any cues or respond to external prompts was overwhelming.

As such my findings were consistent with aspects of both Attribution Theory (Weiner 1985, 2010) and the Theory of Planned Behaviour (Ajzen and Fishbein 1969, 1980; Ajzen and Madden 1986; Ajzen 1991; Fishbein 1967) previously introduced in chapter 2. It was therefore important to critically re-evaluate these theories, to determine to what extent they helped to explain my findings.

5.2.1 Attribution Theory

Although attribution theory offered a great deal in terms of understanding how students attribute poor results to certain factors, and provided a strong foundation to build on; it did not recognise many of the factors that emerged as important through my research.

A key component of the theory is the initial trigger which it suggests is as a result of a negative outcome that is either unexpected or important. For a significant number of the students who had considered being assessed, the fact that they stated that they were 'doing okay' was noteworthy (n=58 + 3)[55]. This was even more apparent in the follow up interviews where all of those in group B (who had not gone forward) felt they were either doing well or had previously done so. Although some of this group did acknowledge that they were currently struggling slightly, their previous academic success allowed them to suppress this. They were therefore not at the stage of being ready, or needing, to seek support. Weiner (2010) did identify 'past personal history' as one of the causal antecedents, although this seemed to relate more to the individual's negative perception

[55] Where quantities are portrayed as (n=58+ 3) the first value signifies the i-survey result and the second group A interview data. Group B interview data is not shown as these students gave an i-survey response which was then reiterated during the interview phase.

of their own ability. If the individual had a history of repeated academic failure then he suggests it was likely to result in a personal expectation that this was 'their norm'.

The remaining components of the theory (as displayed in Figure 3) all had value, to a certain point. However, the theory did not acknowledge that an individual may be unable to identify a potential cause, due to a gap in their understanding. A significant finding from my research was that individuals did not seriously consider dyslexia because they did not understand what it meant. Although Weiner did identify some potential 'causal ascriptions', and recognising that his list was never intended to be exhaustive[56], the impact of a gap in understanding cannot be underestimated. My findings reveal that students recognising dyslexia as a potential cause of their difficulties is fundamental to their search for a solution. This concept was first discussed by Plato (2005) when he shared a conversation which took place between Socrates and Meno, a young aristocrat, in 402 BC.

> Meno - *"How can you try to find out about something Socrates, if you haven't got the faintest idea what it is?.....even supposing you did come across it, how would you know that <u>that</u> was <u>it</u>, if you didn't know what it was to begin with?"* (Plato 2005 p100)

To which Socrates replies.

> Socrates – *"Ah, I see what you're getting at, Meno. See what you're doing? You're bringing in that famous quibbler's argument, the one that says that it's impossible to try and find out about anything – either what you know or what you don't know. You can't try to find out about something you know about, because you know about it, in which case there's no point in trying to find out about it; and you can't try to find out about something you don't know about, either, because then you don't even know what it is you're trying to find out about."* (Plato 2005 p 100/101)

He goes on to suggest that the quibblers argument is often used as an excuse but that the notion that 'you don't know what you don't know' is critical.

A significant number of respondents within my research gave a reason for not going forward to be assessed that fell under the broad umbrella of 'not necessary'. When these were re-examined in detail they were often linked to limited understanding. Students also frequently cited not knowing where to go (n= 23) or how to go about getting tested (n= 44) although they often acknowledged that they could have done more to find out.

[56] As illustrated by his use of "etc etc"

The impact of not recognising dyslexia as a potential cause was identified as either a primary reason, or a contributory factor, in the majority of students surveyed.

Having re-examined Attribution Theory it was evident that whilst it offered some value in helping to identify factors which might influence students; its failure to explicitly acknowledge the impact of a gap in understanding was a major shortcoming.

5.2.2 Theory of Planned Behaviour

The other key theory considered in the post data analysis review of literature, was the Theory of Planned Behaviour. This was initially proposed by Fishbein (1967) before being developed further (Ajzen and Fishbein 1969, 1980; Ajzen and Madden 1986; Ajzen 1991). The theory established that intention to seek help strongly correlates with action. It also recognised two independent determinants of intention: the individual's personal attitudes, and subjective norms which are externally driven.

The concept of personal attitude, and whether or not respondents viewed the potential action, in this case going for a dyslexia assessment, as desirable, did not emerge as a strong finding within my research. There were a small number of students who identified potential benefits, for example extra time in exams. However, this was often balanced against a sense of unease that it was an unfair advantage. To what degree this was internally or externally influenced was not always possible to ascertain, particularly when data was derived from the i-survey. In reality it was probably a combination of both, as although Ajzen and colleagues identify the two sets of determinants as independent they are likely to overlap. The same applied when considering respondents feelings about labelling (n= 14 + 2), potentially damaged employment prospects (n= 8 + 4) and other people's opinions of them (n= 5 + 4). To what extent these feelings were framed by subjective norms, as opposed to personal values, which Ajzen and others recognise as an antecedent to personal attitudes, is unclear. However, all of these factors were much less evident within my data than might have been expected. This meant that again this theory was only of limited value in helping to understand students' decision making within the specific context of my research.

5.3 Identification of key concepts

The wealth of qualitative data from 292 students[57] demonstrated that the most common reason for students deciding not to be assessed was that they did not consider it necessary. This was underpinned by three interconnected concepts:

Academic self-concept – related to how the student perceived their academic self, measured by how well they were doing versus recognition that they were struggling.

Understanding what dyslexia is - whether the student recognised the pattern of difficulties associated with dyslexia; and therefore, potentially attributed their own situation to the condition.

Comparisons with the dyslexic population – even when students recognised how dyslexia might manifest they benchmarked themselves against others. This sometimes led them to reject dyslexia as a possibility if they did not perceive their problems as being as severe as others who were dyslexic, or different.

These are now discussed in turn, exploring existing literature alongside my findings. Through this I will establish where my findings are consistent with previous literature and reveal the new insights where this study makes a unique contribution to the body of knowledge.

5.3.1 Academic self-concept

The students' academic self-concept was fundamental to whether or not they perceived a need to seek help. As a subject this has been studied extensively, albeit mainly in relation to children.

Self-concept in its broadest sense has been defined as "a dynamic complex of attitudes held towards themselves by each person", (Burns, 1982, p7). He went on to suggest that it is subjectively constructed and has a three-fold role. It helps to maintain a sense of inner consistency; helps to determine how experiences are interpreted and finally provides a sense of expectancy. Since this early work understanding of the complex nature of self-concept has grown. It is now acknowledged that it comprises academic, social, emotional and physical dimensions. Furthermore, academic self-concept is sub-divided into subject-specific components which are influenced by affect (enjoyment) and competence (ability), (Burns et al 2018).

[57] This comprised 287 group B students who responded to Q8 in the i-survey, of whom 6 were subsequently interviewed; and 5 additional students who participated in the interview phase (group A).

Focussing specifically on academic self-concept (ASC) it was evident that students within this research had a strong sense of ASC, particularly amongst those who had decided not to be assessed. To secure their place at the university in question, they had needed to achieve very high grades at 'A' level. They were therefore confident in their own abilities. Terms such as "always done well" or "succeed academically" were frequently cited, with some students specifically discounting dyslexia because "I wouldn't have got the grades I do if I was".

This strong sense of ASC also appeared to also be influenced by their ability to work unaided. One student proudly declared that they had "been able to do their work without extra help and still get good marks", whilst others alluded to this. There is plethora of literature relating to help-seeking; although as is the case with most educational research, the focus has frequently been on children. When examining the relationship between self-esteem and help, several key studies have indicated that provision of help, whether sought or offered, has a damaging effect on a child's self-esteem, (Graham and Barker 1990; Newman 1990; Butler and Newman 1995). They established that the children involved wanted to show others that they had the ability to problem solve and manage situations on their own. An inability to do this had a significant effect on their self-esteem.

When considering university students these findings are likely to be replicated, and magnified if the seminal work of people like Carl Rogers and Malcolm Knowles is taken into account, (Rogers 1951, 1969; Knowles et al 2011). They all stress the importance of psychological safety and maintaining the adult learners' sense of self-esteem. Although self-esteem and self-concept differ subtly, they are interconnected. Both are important and they are constantly reshaped as the individual evaluates feedback from social interactions. If a student regularly does well, receiving positive feedback and achieving their personal goals[58], they are likely to have a strong academic self-concept and subsequent high self-esteem, (Burns 1982). Temporary setbacks will be seen as a challenge to try harder, (Seligman 2018). Underpinning this is the work of (Zimmerman 1995) who established that when a student is convinced of their own competence that they are more likely to utilise task-orientated and problem-solving strategies. These in turn further enhance their performance.

The earlier discussion surrounding Weiner's Attribution Theory (2010) emphasised that the usual prompt to seek help arises when a student fails, or gets a worse mark than anticipated. In the absence of this, it is likely that no action will be taken. This was clearly evident in my data, with 58 students (20%) who had chosen not to seek help

[58] This may be related to achieving a desired grade

explaining that their reason for not being assessed was that they were 'doing okay'. What was far more notable however, was the contrast between the two groups. Within the survey data none of the respondents in group B had given a response coded as reaching the 'tipping point'. When their experiences were explored in more depth during the interview phase it transpired that 2 of the 6 were experiencing some degree of difficulty. Both of these students acknowledged that if they continued to struggle that they might seek help, but neither had any intention to do so at that point in time. In contrast all of those in group A had experienced sufficient difficulty to go forward for a test; albeit often with encouragement from others.

It is also important to recognise that although the students perceived themselves as either having always done well, and in many cases, they were maintaining this at university, the academic challenge would continue to grow. Mapou (2008) identified that dyslexic students will often reach a plateau and that as the task gets harder, unless they can develop their coping strategies further, that they will begin to struggle. This is particularly relevant within HE as the higher-level skills, often referred to as executive functioning, are affected more frequently in those with dyslexia than those without, (Smith-Spark et al 2016a, 2016b, 2016c). These skills are fundamental to managing the academic demands of HE and influence activities such as listening to lectures whilst taking notes and managing the depth and breadth of reading required, (MacCullagh et al 2017). Data from my study highlighted that some students, although they had not reached their tipping point, were finding the academic demands challenging and felt that they were starting to fall behind. This was evident across the academic levels and it is likely that the challenges of higher level study accounted for the number of PGT and PGR students who expressed that they had considered being assessed.

The final point to consider was whether the students' perception that they were doing okay was accurate. Data related to academic results was not sought during the research. This was because at the outset it was considered too intrusive and a factor which might deter students from participating. As the research evolved, their perceptions of 'doing okay' became clearer and it was interesting to observe that 22 of the 58 students who stated that they were doing okay also talked about having difficulties characteristic of dyslexia. The fact that they were succeeding deterred these students from seeking help. Evidence from numerous studies related to specialist support suggests that this may not have been in their best interests. With appropriate targeted support students not only achieve better results but often find that the effort involved to succeed becomes more manageable, (Hornsby and Miles 1980; Price and Skinner 2007; Mortimore 2008).

5.3.2 Understanding what dyslexia is

Although there is currently no published research on the topic, one area that this study hoped to uncover was the impact that the students understanding of dyslexia might have on their decision to be tested or not. Anecdotal evidence, from my role as Faculty Lead for Inclusivity, had suggested that students might be influenced by the presence or absence of symptoms which they believed to be characteristic of dyslexia. The evidence presented in chapter 4 confirmed that this was the case.

Historically, dyslexia was first described in the early 1900's as "word blindness" with early theories focussing predominantly on the visual problems that individuals with dyslexia experienced. In the 1930's Orton went on to describe a condition known as strephosymbolia (twisting of symbols), (Whiteley and Smith 2001). Now over a hundred years later, the multi-faceted nature of dyslexia is much better understood, at least by those with an interest in the subject. In contrast however, the general public seem to only associate certain key issues with dyslexia; and appear to discount it if these are not evident. The quotes shared illustrated that this was often the case with students.

Analysis of the data revealed that students frequently decided that because they could spell that they were unlikely to be dyslexic. This is consistent with previous studies by Snowling et al (2012) and Negrard-Nilssen and Hulme (2014). Both identified that adults were more likely to perceive themselves as dyslexic if they had a spelling impairment than if they had difficulty reading. This focus by the lay public on spelling is particularly interesting as this is an area where dyslexic adults are likely to have found ways of coping. This means that any potential spelling difficulties may not be evident in daily life.

The research on this area introduced in chapter 2, whilst dated, is still considered seminal. It highlighted that although phonological coding skills were often poor in individuals with dyslexia, orthographic coding skills frequently exceeded those of the spelling-age controls, (Pennington et al 1986, 1987; Lefly and Pennington 1991). A key feature of these studies however was that they all considered compensated dyslexic adults, who were able to spell significantly better than those in the non-compensated control groups. This gave an early indication that university students may not exhibit the same pattern of difficulties as you might expect. This has since been confirmed by Rakhlin et al (2013) who established that individuals with strengths in other aspects of language development can potentially overcome difficulties with spelling.

When the task is broadened and individuals have free choice over their vocabulary and therefore spelling requirements, dyslexic difficulties are likely to become even less apparent. Carter and Sellman (2013) examining writing skills of dyslexic learners at

university revealed that students either adopted a 'solution-finding approach' where they did not perceive the spelling aspect of academic writing as a barrier to success; or on occasions a 'problematizing approach'. Within my research it was clear that spelling difficulties were not viewed as a significant problem for any of the students. The fact that this was the main area they associated with dyslexia and that they were able to easily overcome any spelling difficulties appears to have been instrumental in many students deciding not to be assessed.

The other area frequently cited by the general public as being a feature of dyslexia is a difficulty reading. How this is affected in dyslexia was introduced in chapter 2, identifying that a slower reading speed than their peers, the potential to have to re-read to increase their comprehension and a dislike of reading aloud are common features, (Miles 1993; Everatt 1997; Simmons and Singleton 2000). To what extent students recognise these difficulties in themselves has previously not been explored. The fact that some aspects such as reading aloud can often be avoided may help hide the true nature of the problem. Furthermore, research by Shaywitz and Shaywitz (2007) highlighted that the area in the brain responsible for deciphering the written word, changes as we grow older. They also established that in the case of dyslexic individuals an area of the left hemisphere, slightly posterior and medial to the usual area, assumes a more important role. This in turn helps adults to draw on their memory in the form of word recognition to assist their reading, which if well-developed can also 'hide' any deficit.

Within the research some students talked about their difficulties with reading, either identifying that they felt that they read slowly, that they could not remember what they had read, or that they made mistakes. In each of these accounts, although their difficulties perhaps increased their workload, the students seemed to view them as a minor inconvenience. Reinforcing the point made earlier about doing okay, the following quote highlights the relationship between students' narrow perception of dyslexia and not struggling to a point that they need to do something about it. It came from a second year undergraduate student who stated that "*I think you assume that if you can spell and read then you haven't got any difficulties*."

In light of the ongoing debate as to the nature of dyslexia, as discussed in chapter 1, it is perhaps not surprising that the lay public struggle to understand its complexity. Historically, there were two rival camps, each offering different ideas about the foundations of dyslexia. The first of these, from those supporting the phonological deficit hypothesis was that dyslexia is caused by an abnormality in speech processing at a cognitive level (Snowling 2000, Vellutino et al 2004). The opposing viewpoint proffered, is that an abnormality in the anatomy of the magnocellular system is at fault, (Stein 2001, 2003). More recently questions regarding whether dyslexia exists, have done little to clarify the situation, (Elliott 2005, 2006).

One key paper that has attempted to gather together opposing theoretical beliefs is that of Frith (1999). Building on the ideas proposed in the Causal Modelling Framework developed several years earlier (Morton and Frith 1995) she asserts that dyslexia is a syndrome and has neuro-developmental origins. As such the presence or absence of any individual characteristic becomes less significant. This is particularly important when considering work by Reid et al (2007) when they demonstrated what they described as a 'striking heterogeneity' of profiles across a group of Polish university students with dyslexia. They suggest that this is indicative of the sub-types which are well recognised by those in the field. Ryder (2016) in her recent study of the views of staff who perform assessments for dyslexia also found wide acceptance of diversity within the condition. This was coupled with a clear recognition that this must be considered within the assessment. She found that assessment outcomes were based upon what she described as a "complex bidirectional relationship between scientific research findings about dyslexia and individual professional assessors diagnostic practice", (Ryder 2016 p 338).

This ability to exert professional judgement when considering if an individual's personal profile corresponds to a dyslexic profile is paramount. It was not something that students considering an assessment would be aware of however, which is in itself problematic. It was clear within the research that students were making comparisons with both expected characteristics, as discussed here; but also with what they saw in others.

The other factor to emerge from the research, linked to understanding, related to the significant part that other people played in helping the student make a decision, or not. It was notable the number of students who expected staff to pick it up. In total 18 students commented that teachers, lecturers, and more specifically markers, had never picked it up. In contrast 13 students, and all of those in group A, had been encouraged by others, who clearly recognised the possibility of dyslexia. The expectation that teachers would recognise dyslexia was first discussed by Miles and Miles (1999). They highlighted that despite school teachers not being taught about dyslexia, parents still expected them to identify it. As a result, the *Dyslexia Friendly Schools* initiative was launched in 2001, (Eastap and Gregory 2018). Within the Higher Education sector several studies have explored lecturers understanding of dyslexia, and staff development offered to enhance this. These have all confirmed that access to specialist training is variable across different HEI's and that often it is included as part of more general disability awareness training. Where it does exist uptake is poor, and often only extends to those who already have an interest in the subject, (Busgeet 2008; Michail 2010; Cameron and Nunkoosing 2012; Ryder 2016). Furthermore, Busgeet (2008) revealed that there was no discernible difference in understanding, between those who had attended a dyslexia awareness session, from those who had not. My data

demonstrated that there were staff who had a level of understanding about dyslexia, possibly due to personal experiences, who were prompting students to seek an assessment. This was consistent with both Farmer et al (2002) and Pollak (2005) who found that students were frequently encouraged to be assessed, although this may be by friends/family in addition to academic staff. What is not known however is how often dyslexic type difficulties are not recognised by staff and the missed opportunities that thereby result. There is clearly a need for further research on this topic to identify current provision of dyslexia awareness sessions, uptake and the impact of this training across the UK.

5.3.3 Comparisons with the dyslexic population

The final concept to consider, although inter-connected with their understanding of what dyslexia is, was the extent to which students compared themselves to peers or family members who they knew to be dyslexic. This is particularly significant when the fact that no two individuals with dyslexia will have exactly the same profile, whilst still meeting the criteria to be identified as dyslexic, (Reid 2016). This some suggest, may lead to a 'classification escalator' where individual differences move to deviations, difficulties, disabilities, deficits to eventually become defects, (Pumfrey 1990). Compounding the situation is the fact that there continues to be no consensus as to which criteria, and to what extent, specific factors need to be judged as 'problematic' to justify a 'diagnosis'. There continues to be an element of choice in the specific tests that each assessor favours. In addition, most tests are age standardised so vary across the educational journey. As a result, there are widespread variations in what is included within a dyslexia assessment. Further discussion of the specifics of the assessment process fall outside of the scope of this study, but this brief overview has highlighted the individual variations and lack of consensus that the experts struggle with. It is therefore not surprising that students who saw a different profile of difficulties in themselves to their peers/family were quick to dismiss dyslexia. Furthermore, Sample (2005) highlighted that 'squabbles' amongst those conducting research into the nature of dyslexia only fuelled the popular press view that the existence of dyslexia was questionable.

Findings from my research also revealed that students saw a very distinct continuum. Those interviewed frequently used their hands to covey where a dyslexic friend or sibling sat on the continuum and where they saw themselves. One of the most notable of these was the student who had 'diagnosed' her husband as being dyslexic, despite him never having been tested. She talked about not putting herself in the same category as him, and about how she kept making comparisons between areas he struggled with and herself. When she was herself confirmed as dyslexic she reacted with incredulity asking how she could be dyslexic?

The findings related to how much students understood and to what extent this was shaped by their comparisons with peers/family who they knew to be dyslexic, highlighted the importance of raising awareness amongst students. This is particularly important in relation to the impact of dyslexia on executive functioning discussed earlier, (Smith-Spark et al 2016a, 2016b, 2016c). If students only recognise certain characteristics as being associated with dyslexia, it is likely that any difficulties they are having related to executive functioning will not be attributed to the condition. Furthermore, comparisons with friends/family who are not within HE may also mislead them. This was evident in the student who compared herself to her brother who struggled to read. Although she was clearly a more proficient reader, it was still unclear as to whether she was equipped to cope with the demands of her degree programme. The student talked about struggling to write things down, and often writing them in the wrong order, so it appeared that she was experiencing difficulties at a certain level. When she viewed herself on a continuum, against her brothers level of difficulty due to his dyslexia, it was easy for her to rationalise that she was unlikely to also be dyslexic. This is particularly interesting in light of the evidence that it is a "highly heritable learning disorder", (Carrion-Castillo et al 2013) and that having a dyslexic sibling significantly raises the likelihood of her too being dyslexic.

5.4 Development of a conceptual model

As a result of the iterative process of synthesising my findings, and contextualising these against existing literature, it was clear this study had revealed new understanding. Existing theoretical models, whilst helping to shape my ideas were also not able to fully embrace my findings. The conceptual model depicted in Figure 11 was therefore devised to portray the key factors which influenced the students' decision making and the inter-relationships between them.

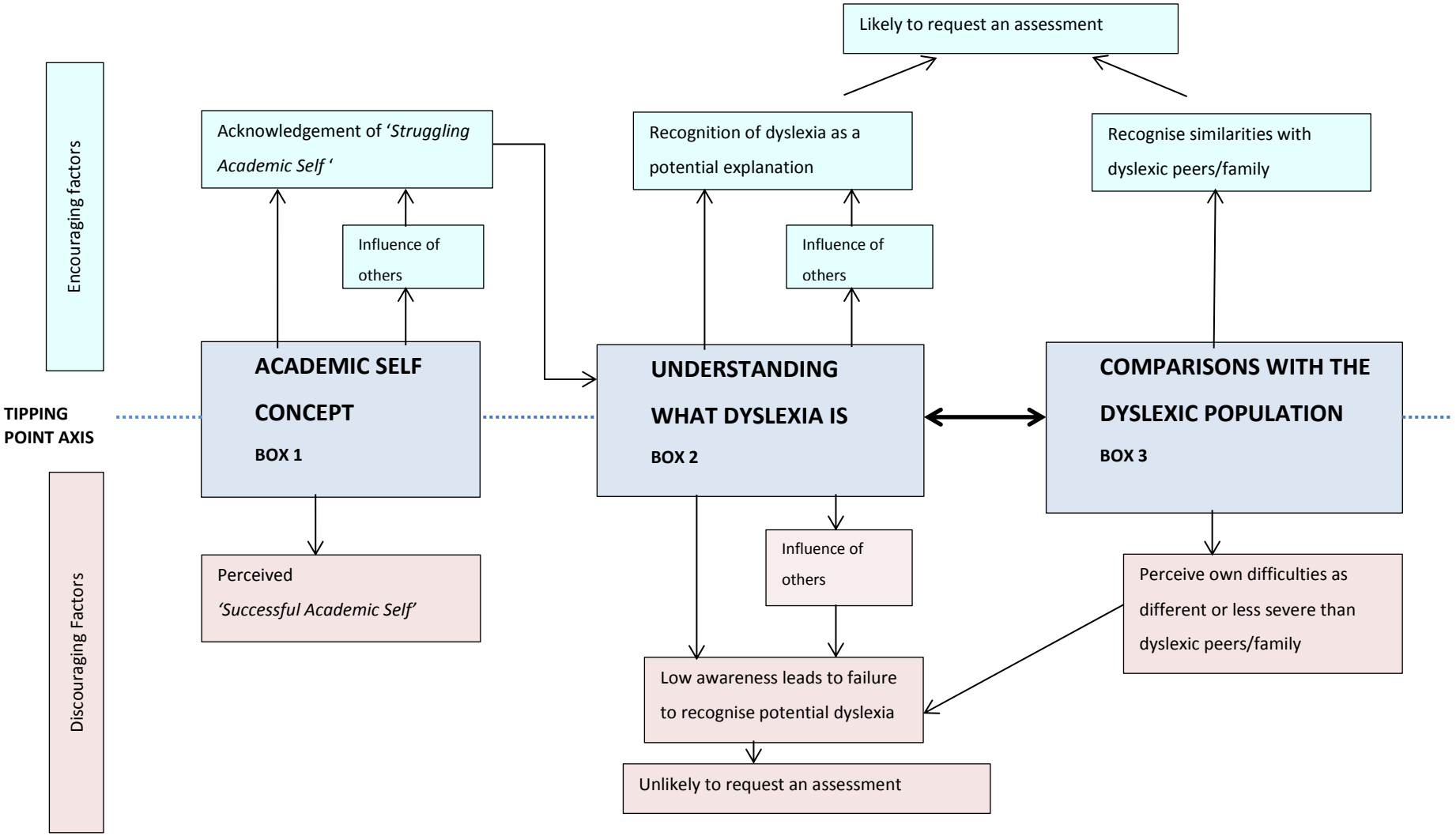


Figure 11 : Conceptual Model

Across the centre of the diagram is a dotted line which separates those factors which are likely to encourage students to seek an assessment (above the line) from those that may discourage them (below the line). Fundamental to the framework, on the left of the diagram, is the student's academic self-concept (box 1). The majority of respondents within the research had a perceived '*successful academic self*'. They frequently stated that they were 'doing okay', achieving high grades and were experiencing academic success; as such they were unlikely to request an assessment. There is no direct link with the other two concepts for these students as they have not reached the point where they perceive a need. This reflects observations by Weiner (2010) reflected in his Attribution Theory where the prompt for action was an unexpected or significant negative result. If students have not experienced this their academic self-concept will be strong and there is no need to seek help. For other students however, something had challenged their academic self-concept, either as a result of failure, or when their grade achieved did not reflect the effort they felt they had put in. At these times the students potentially moved into zone above the dotted line where they acknowledged a '*struggling academic-self'*. On occasions this was influenced by others, most frequently academic staff, but also by peers.

What happens next is determined by how much the student understands about dyslexia and whether they recognise this as a potential explanation (box 2). If they have a good understanding of dyslexia, and acknowledge that their personal difficulties may be due to the condition; they are likely to request an assessment. They may also be encouraged by others, who are themselves familiar with dyslexia, and who use this knowledge to raise the student's awareness. For those with a limited understanding, the potential association is unrecognised, and they therefore never seriously consider being assessed[59].

The final factor surrounds comparisons that students make between themselves and others who they know to be dyslexic (box 3). This may shape their understanding and a strong two-way relationship is therefore identified between understanding and these comparisons. At times students had close contact with family or peers who were dyslexic and they recognised that they were experiencing similar difficulties. This was often enough to make them seek an assessment. On other occasions, the students perceived their symptoms to be less severe. Although they were clearly aware of what dyslexia was they did not view their level of difficulty as comparable with what they saw in others. Finally, there were students who did not have the same pattern of difficulties as they associated with dyslexia; again, often shaped by close personal contact. This led them to

[59] The fact that these students participated in the study and answered yes to the question "have you ever considered an assessment" demonstrates that there was a vague level of interest.

discount it, even though they had a reasonable level of understanding. They either did not recognise the diversity of the condition or that each area of difficulty may be present to a greater or lesser degree.

To illustrate this more clearly the five students presented in section 5.12 have been analysed against the framework. Table 32 highlights where they are located in relation to each concept.

Table 32 : Analysis of vignette students against the framework

Student	Academic self-concept	Understanding of dyslexia	Comparison with dyslexic population
BC32	Due to previous academic success this student had a strong successful academic self-concept	Although the student recognised difficulties with reading as a feature of dyslexia they went on to cite other potential characteristics. They admitted that they were not sure if these were associated with dyslexia or not.	There was evidence of them making comparisons with certain characteristics but not against others – this is likely to be because their academic success meant they had not reached a point where they needed to seek further information
BA08	This student was experiencing some difficulties which they recognised, but was still doing well academically.	At first, they had a poor understanding of dyslexia (despite having a dyslexic sibling) but this had increased through conversations with others	Comparisons with dyslexic peers/sibling had enhanced their understanding but they did not see their problems as being as severe. The fact that they were succeeding academically and were concerned about future career prospects meant they did not want to be assessed.
AB01	This student was aware that there was an issue following a prompt from their tutor but had actively suppressed this for some time.	The TV documentary had provided a good awareness of dyslexia.	They had compared themselves against both expected symptoms and peers but initially chose not to proceed. It was only after things did not get any better that they decided to seek help.
AG01	A previously successful career had led this student to delay seeking help. When they couldn't keep up with the course requirements they had started to acknowledge that there might be something wrong.	Although they did have a limited understanding of dyslexia, they did not recognise the multi-faceted nature of the condition. As such they failed to attribute their difficulties to the condition.	As they did not have a problem with words, which the student saw as the essence of dyslexia, they discounted it as being unlikely. It was only after they experienced ongoing issues that they reluctantly decided to be assessed, which they still regretted.
BE52	This student recognised that they were experiencing difficulties.	They attributed their difficulties to language problems, despite also experiencing them in their first language. There was no explicit consideration of dyslexia as a potential cause suggesting a limited understanding of dyslexia.	As they attributed their difficulties to another reason there was no comparison with the dyslexic population.

5.5 Chapter summary

This chapter has synthesised the findings and presented four key concepts. These were that :

- Students had to have reached a tipping point before they were sufficiently motivated to seek an assessment.
- Reaching this point was largely determined by their academic self- concept and how well they perceived that they were doing.
- When students did acknowledge that they were struggling, often after prompts by others; whether or not they recognised dyslexia as a possible explanation was influenced by their understanding of the condition.
- This in turn was heavily influenced by how they saw it manifest in others.

Each of these factors was explored in the light of existing literature and explanations constructed for new learning that had emerged from my data. The next, and final, chapter will reiterate the unique contribution that this study has made and propose recommendations for future practice and research.

Chapter 6: Conclusions and recommendations

This exploratory qualitative study began with a desire to establish if, in addition to the 43% of dyslexic students identified at university (Singleton 1999), that there were a further group who had contemplated being assessed but who had not gone forward to do so; and reasons behind this. The findings presented and discussed in the last two chapters have confirmed that at the university studied, 310 students, across all levels of academic study, had considered being assessed. At the point of data collection none of these students had gone forward for an assessment.

This final chapter will begin by revisiting the research questions and summarising the key findings. From this it identifies the unique contribution that this study makes to expand the body of knowledge. Recommendations for future policy and practice are then proposed, before considering what further research is required. The chapter will draw to a close by acknowledging potential limitations of this study, alongside a personal reflection on the journey that I have undertaken. A final summary and poignant quote from a student draw the research to an end.

6.1 Summary of key findings

Although the data has provided answers to the research questions within chapter 4, they are summarised briefly below.

Q1 How many respondents, who have not previously been tested, have considered having a dyslexia assessment?
In total 310 students had considered being assessed, of whom 287 gave reasons why they had not gone ahead.

Q2 Are there differences in the demographics of students who have considered being assessed for dyslexia in relation to level of programme, year of study and the faculty they are studying in?
There were no notable differences. The data demonstrated that students at every stage of their educational journey had considered being assessed, and across all faculties. Of the 308 students who had considered being assessed, 257 were on an Undergraduate degree; 19 on a Post Graduate Taught and 32 on a Post Graduate Research degree.

Q3 Do differences exist between faculties within the university in in relation to how students proceed?

The low response rate within some faculties made it unwise to attempt to draw too many conclusions regarding differences between faculties. From the data available however it was noted that there were slight differences. When considering those who had gone forward (group A) as a percentage of those who had completed the i-survey from each faculty, the range was between 1.96% and 7.14%. For group B students (who had not been assessed) it varied between 32.43% and 57.81% across the 8 faculties

Q4 What factors lead a student to consider being assessed for dyslexia?
Four main reasons were identified that caused a student to consider being assessed. The first two linked to academic achievement in that the students' grades were lower than they, or others, expected; or that there was a mismatch between coursework and exam results. No longer being able to avoid areas that they found challenging due to the demands of HE was also a factor. Finally one student revealed that moving to university removed her previous support system, in the form of her mother, without whom she was beginning to struggle.

Q5 What factors encourage students to go forward and be assessed for dyslexia?
Again, the main reasons for students going forward were academic failure, or not doing as well as they had hoped. The influence of others was pivotal. All of the students who had been tested had been encouraged to do so, predominantly by academic staff, but in one instance by a friend.

Q6 What factors prevent students going forward to be assessed for dyslexia?
The most significant factor was that students did not consider it necessary. This was strongly linked to academic success, either on their present course or previously. Where students were starting to struggle, this was often suppressed by their previous success and belief in their own academic ability.

Q7 Do differences exist between faculties within the university in relation to the factors which influence student's decision making?
Yes, although this requires further research. Students studying law, medicine and teaching specifically referred to possible consequences for their future career if they were found to be dyslexic. This clearly acted as a strong deterrent, although some of these students had gone on to be tested. In one instance the student, having been found to be dyslexic, thought that they would have to give up on their chosen career.

Q8 How much do students understand about the nature of dyslexia?
The data indicated that most students' understanding was quite limited. They referred to areas that are widely known to the lay public surrounding spelling, reading and writing.

The higher level skills affected by dyslexia, which are more likely to impact within HE, were not associated with the condition.

Q9 Does the student's perception of dyslexia influence their decision?
Yes, dyslexia was frequently discounted when students did not recognise the wider pattern of difficulties that they were often experiencing as being characteristic of dyslexia. The ability to spell was often seen as confirmation that they could not possibly be dyslexic. Furthermore if students perceived their level of difficulty as less severe than experienced by others who they knew to be dyslexic, it was again discounted.

Q10 What part do others play in student's decision making?
For all of the students who had gone forward to be assessed it was as result of a prompt by a member of academic staff or friend. On occasions students were also deterred from being assessed after discussion with friends or family. One student specifically stated that his mother had persuaded him not to be assessed.

Q11 Do students have adequate information about how and where to go to request an assessment?
Lack of information surrounding where to go or how to go about requesting an assessment was frequently cited. In addition concerns regarding the perceived cost deterred some students. It was notable that students who said that they did not have enough information often acknowledged that they had not tried to find out. There was a clear link to perceived need, and all of the students who had sought information found it readily available.

The wealth of data collected from 674 students across the university, confirmed the suspicion that there might be an additional group of students who had contemplated being assessed for dyslexia but who had not done anything about this. As there has previously been no research on this topic, the insights gained have added to the previously limited body of knowledge surrounding university students with dyslexia; or those who suspect that they might have. The next section will clearly identify areas where understanding has been enhanced before using this to propose future academic practice, policy and research.

6.2 How this research contributes to the body of knowledge

The conceptual model presented in chapter 5 drew together the findings, illustrating the relationship between the different contributing factors and how collectively these may influence the students' decision. If these are separated again, briefly, the important insights related to each can be examined.

6.2.1 The research established the importance of students having reached a 'tipping point' before they seriously considered being assessed.

In total 310 students stated within the i-survey that they had considered being assessed for dyslexia, but at the time of data collection none of these students had gone forward. Participants gave a range of reasons as to why they had not gone ahead, and often hinted at factors which had made them consider it. Data obtained through the in depth interviews with 6 of these students, and with a further 5 students who had been assessed, revealed the reasons why. Unless the student had reached a point where they were experiencing difficulties that they could no longer ignore, they were unlikely to go ahead. A prompt by a member of academic staff or peer might add impetus, but this was often suppressed if they were not ready to hear it. Other factors identified through the i-survey, which could have been influential were strongly linked to perceived necessity. These included the time required (n=43), cost (n=46) and lack of information (n=84). Where students recognised a need they sought out information, or devoted the time/money required, but this was unlikely to happen until they reached a pivotal point. Until this study was undertaken there had been no previously published research considering students who had contemplated being assessed. The importance of this tipping point, and the reasons that underpin it, are therefore far reaching. If, as was presented in chapter 1, access to specialised support is vital to students' success, the need to understand what influences students reaching their tipping point is paramount. The other key findings revealed reasons why.

6.2.2 The research established that the perception of a successful academic self often overcame strong cues that the student might be dyslexic.

This study has built on the work surrounding academic self-concept, establishing that students at the traditional 'red brick' university studied, had both a strong sense of self-concept and positive self-esteem. This was fundamental to whether they seriously

considered dyslexia as a possibility. Even when students had a suspicion, or were encouraged by others, the fact that they viewed themselves as being successful academically was critical. Those who saw themselves as succeeding quickly discounted dyslexia, often in the presence of symptoms associated with the condition. It was only when they started to fail, or perform badly, that the students became motivated to seek an explanation. This was apparent in students at all stages of their academic journey.

6.2.3 The research established that students' understanding of what dyslexia is was poor

Where students did acknowledge that they were experiencing difficulties they often failed to associate these with dyslexia. This was perhaps not surprising when the lack of consensus amongst dyslexia experts is considered. The debate as to what dyslexia is, and what it is not, has raged for almost 30 years. There are strong, and differing opinions offered as to what should be considered *core* deficits. The situation is further complicated by the fact that the majority of research has been conducted on children, with much less emphasis on adults and how dyslexia impact on them. Where studies have focussed on the adult population, these have often been quite narrow in scope. This lack of insight meant that even when students had reached a tipping point that they may not understand why. Overall they had a superficial lay understanding and failed to recognise that difficulties that they were experiencing were likely to be associated with dyslexia.

6.2.4 The research established that students understanding was often framed by comparisons with symptoms they saw in others, who were known to be dyslexic, and the severity of these symptoms.

There was a strong relationship between what students understood about dyslexia and their observations of family and friends with the condition. This was not perhaps surprising within an academic environment. Students would have been exposed to peers with the condition throughout their educational journey and their perception was likely to have been framed by the pattern of difficulties that manifest in children. As stated above, student perceptions of the pattern of difficulties characteristic of dyslexia was narrow. They associated dyslexia with a difficulty in spelling and frequently discounted it as a possibility if they did not struggle in this area. The notion of 'doing okay' either in their current studies, or previously, was frequently referred to. In order to be accepted at university students will have had to master the core academic skills, which they often observed as being less developed in friends and family with dyslexia. The executive functioning skills required at university, would not have been called upon during

compulsory schooling years. Students therefore did not recognise difficulties in these areas as a feature of dyslexia.

In addition the research exposed several other key findings that are worthy of future exploration.

6.2.5 A notable number of Post-Graduate students had considered being assessed.

Data from the i-survey highlighted that 17% of those who had stated that they had considered being assessed were on a Post-Graduate [PG] programme. Of these 58% were studying at Doctoral level (n=27). It is widely accepted that individuals with dyslexia will develop strategies that mask any particular difficulties that they regularly encounter, (Lefly and Pennington 1991; Miles 1993; Sterling et al 1998; Reid and Kirk 2001). It is therefore only as the task becomes harder that 'cracks' might start to appear, if these strategies are insufficient, (Mapou 2008). The executive functioning skills defined by Smith-Spark et al 2016a, 2016b, 2016c) required within Higher Education, particularly when studying beyond undergraduate level are therefore likely to challenge those whose strategies are less developed. Unfortunately the number of PG students who volunteered for phase 2, and were subsequently selected using the random number technique, was insufficient to draw any real conclusions. Despite this, the fact that within 4 of the 8 faculties studied the number of PG students[60] considering a test, exceeded that of undergraduate students warrants further targeted exploration.

6.2.6 Students expected academic staff to recognise dyslexia and to alert them to the possibility.

Within the i-survey 18 students explicitly stated that dyslexia had never been suggested by teachers or academic staff. Several students thought in particular that markers should have recognised it and raised it as a possibility. The role of others in encouraging students to be assessed has previously been recognised. The first acknowledgement of this was by Miles and Miles (1999) who stated that parents expected school teachers to pick it up. Then both Farmer et al (2002) and Pollak (2005), as part of their studies on dyslexic students within HE, recognised that students were frequently encouraged by others to be assessed. Neither study set out to explicitly measure this however, meaning that what prompted this encouragement is unclear. The fact that all of the students interviewed within my study who had gone ahead had been encouraged reinforces the importance of academic staff involvement. There is therefore a need for future work to

[60] When considered as a percentage of the likely dyslexic population

understand what prompts staff to suggest to a student that they consider being assessed, to build on my preliminary findings.

6.3 Recommendations for future academic practice

Findings from my research have confirmed that there was a population of students within the university studied who had considered being assessed for dyslexia, but who had not come forward. It was also evident from the student accounts that some (n=38) of these students were experiencing difficulties which could be considered characteristic of dyslexia. In chapter 1 the importance of early recognition was stressed, articulating the importance of specialised support being made available in a timely manner. With help, the effort that students need to put in to succeed has been found to become more manageable, (Hornsby and Miles 1980; Price and Skinner 2007; Mortimore 2008). Students who know they are dyslexic can be taught metacognitive awareness to understand their particular learning needs and how to maximise their learning, (Reid and Kirk 2001, Carter and Sellman 2013; Mortimore 2013). Those who remain unaware that dyslexia is the cause of their difficulties are unlikely to be offered this support however. As highlighted in chapter 1 this may mean that they fail to cope with the demands of their degree programme and may chose, or be forced, to leave, (Yorke and Longden 2004, 2007, 2008). There are a further group of students who continue with their degree, but who exit with a lower classification than they are capable of achieving (Richardson and Wydell; Mortimore and Crozier 2006; Pumfrey 2008).

Whilst it is unlikely that all of those who had considered being assessed within my research would be found to be dyslexic; the symptoms described by some participants indicated that for them it was a strong possibility. HESA (2017) data has also identified the percentage of dyslexic students at university as being significantly lower than in the general population. It needs to be remembered that HESA data only reflects those who declare dyslexia on admission and this figure would increase when those identified during their studies are factored in. Despite this my findings indicate that there is a strong likelihood that there are students within HE who are still not being assessed and offered support. In order to address this, a range of recommendations are proposed for those working in academic settings. These are structured around the key findings highlighted within the conceptual model depicted in Figure 11.

6.3.1 Issue 1 – Students are heavily influenced by their perception of their academic self.

If students feel that they are doing well, or consider that they have previously done so, even in the presence of ongoing difficulties, they may suppress these and delay seeking help. Strategies therefore need to be developed to help identify those at risk in order that they can be supported to seek an assessment and receive help in a timely manner.

Whilst ultimately the decision to acknowledge that they are struggling lies with the student, the part that academic staff play was reinforced in my study. There is therefore a need to ensure that academic staff are aware of what dyslexia encompasses and that they use this knowledge to guide students. This could be accomplished by Increasing lecturer awareness through staff development sessions. These are often offered by universities as part of the ongoing staff development but Morgan (2001) suggested that staff may not attend sessions which they feel are catering towards a minority group. She goes on to state that these sessions are poorly attended, and often only by those with an interest in the subject, rather than those you may wish to target. Klein (2001) espoused similar views, suggesting that staff frequently suggested that they were too busy. The irony is that without help these students may struggle, which in the long run will require more staff time to offer support. There is therefore a need to increase both provision and uptake of these sessions. These are fundamental in providing an overview of dyslexia and outlining how staff might recognise signs of dyslexia in students. This insight would enable academic staff to prompt students to seek an assessment and therefore speed up the process of receiving support. Inclusive strategies that all academic staff could incorporate into their daily practice could also be shared. The target audience would need to be all academic staff who come into contact with students through teaching activities, marking, acting as a personal tutor; and the group who could easily be overlooked, as a research supervisor. My research revealed that a notable number of PGR students had considered an assessment, many at Doctoral level, it is therefore vital that supervisors are encouraged to attend these sessions.

Another strategy would be to ensure that the Postgraduate Certificate in Academic Practice (PCAP) programme, which provides teacher training for new university staff, includes detailed content on recognising signs of dyslexia in students. Whilst it does include a brief session on inclusive teaching, the breadth of topics that need to be covered mean that the time allocated to supporting students with dyslexia is limited. Furthermore, it remains reliant on specialist input which may not be available. In addition to the strategies identified above to aid staff recognition and therefore act as a powerful prompt; thought needs to be given as to how students can be supported to maintain a positive self-concept but also to acknowledge that they might be struggling.

This is a much harder area to tackle, but there may be opportunities to explore this during the 1:1 meetings that students have with personal tutors or research supervisors. If academic staff were encouraged to ask specific questions such as "are there any areas that you are finding difficult?" or "how long are you finding that it takes you to read [a designated text]?" staff might be able to identify students who need to put in more effort to keep up. Whilst their difficulties may not be associated with dyslexia, it would nevertheless help staff to identify students who might benefit from specialist dyslexia, or more generic study skills support.

6.3.2 Issue 2 – Students may not recognise dyslexia as a potential explanation for their difficulties

The complex nature of dyslexia and limited lay public understanding mean that students who are experiencing difficulties often do not attribute these to dyslexia. This was evident within the research by the number of students who listed a pattern of difficulties consistent with dyslexia, but discounted them all because they could spell. There is therefore a need to enhance student understanding as to what dyslexia entails in order that they recognise the wider pattern of difficulties associated with the condition.

This could be achieved by staging sessions during the annual *Dyslexia Awareness Week* which normally falls in early October and therefore coincides with the start of the academic year. Quizzes relating to associated symptoms could be used to enhance student understanding. This may result in some students recognising that their own areas of difficulty could be attributed to the condition at that time. For others, who have not reached a point where they have started to struggle, it would hopefully be remembered if they ever reach that stage.

The research also highlighted that although they acknowledged that they could have done more to seek out information, there were a notable number of students (n=84) who were unsure as to how to request an assessment or where to go. This highlights a need to publicise the services on offer more clearly and maybe in more general terms. If students fail to recognise dyslexia as a potential cause, then they will not seek out services related to specialist dyslexia support. Posters within key student areas including social spaces, the library and teaching rooms could be used to pose questions related to key study skills known to be associated with dyslexia. For example asking, "Do you take longer to read course materials than your peers?" might encourage a student to think about whether this applied to them. The same questions could be posted on a variety of electronic platforms to ensure that the target audience were all reached. The 'advert'

could then signpost students to an initial source of support related to general study skills. For any student who might be deterred by the notion that they could be dyslexic[61] this would be a less threatening starting point, after which they could be referred on to more specialist support where required.

Finally, although there is a need for more specific research into this area, it was evident from the data that some professional groups held back from requesting an assessment due to concerns surrounding their future career choice. Paradoxically these students chose not to be assessed in case they were diagnosed as dyslexic; when a confirmed diagnosis would open the door to specialised support. Not knowing does not make it go away, and the potential ramifications of not receiving support need to be balanced against any perceived stigma. Therefore, in addition to the central university support on offer there is a need for profession specific advice and support. In order to fully understand the professional nuances further research is required, but initial strategies could include the provision of faculty-based support. This was identified by one of the students interviewed who felt that it would be less daunting to talk to someone within their own faculty than to walk through the doors of Enabling Services. The use of student 'mentors' who were willing to share their experiences could also be offered. The quote at the end of this thesis was from a law student, a professional group identified through the research as being particularly reticent. This student saw it as a positive move and opinions such as this need to be shared with other students from this faculty. The opportunity to have an informal chat with a student, who had experienced similar difficulties, particularly if they were from the same professional group, might allay any concerns the student had. In addition, within some professional groups there are publications designed specifically to offer support to students studying that discipline including nursing (Cowen 2010a), teaching and medicine. These need to be better publicised and developed in other key areas.

6.4 Implications for local and national policy development

Since commencing the research there have been significant changes in government policy which have had implications for this research. In chapter 1 the decision to make changes to Disabled Student Allowance (DSA) for students with dyslexia, and only provide funding to students with complex needs was discussed (see section 1.3.1)

[61] This would include the additional population of students who chose not to participate in this study for that very reason.

(Willetts 2014; DfBIS 2014a, 2014b). As these changes did not come into effect until the 2016/17 academic year, after data collection was completed, they did not impact on my findings, but do need to be considered when proposing future policy. If the research was replicated today it might find that students are now deterred from seeking an assessment, as the support on offer is perceived to be less attractive. In addition, the changes in funding have led most universities to withdraw the opportunity to be assessed free of charge, which could also deter students. The first of these was not found to be particularly important to students within my study. Students had very little insight pre-assessment into what support might be available, and therefore the changes are not likely to influence their decision making. Cost did feature more prominently however, with 46 students citing cost as a reason that they had not done ahead. Although the cost was subsidised at the time of data collection, with students only being asked to pay a £50 contribution, most were not aware of this and expected to have to meet the full cost.

Since the changes to DSA were proposed the Association of Dyslexia Specialists in Higher Education (ADSHE) and other key groups have campaigned for the provision of a subsidised assessment. The importance of an in-depth diagnostic assessment, conducted by a dyslexia specialist, was proposed by Grant (2002). He advocated that this is the only way to determine the student's individual profile, identifying their specific strengths alongside their areas of difficulty. This in turn enables the specialist practitioner working with the student to design an *individualised* programme of appropriate and *targeted* support.

From this the need to continue to campaign for the retention of a subsidised assessment is evident. This needs to be at both a national and local level. It is unlikely that government policy will change in the foreseeable future, although attempts should continue to be made to advocate on behalf of the students affected. The focus therefore needs to be on local policy within individual universities. When David Willetts proposed the change, the intention was that responsibility for providing support moved to the university, with funding made available to help support this. How that money is spent is very much at the discretion of each university. There is a move to provide more general support, available to all students rather than purely focussed on those with a diagnosed condition. This reflects the social model of disability (Shakespeare 2013) with integration of specialist support into mainstream practice, which can only be a good thing, but it does remove the requirement to have a detailed individual assessment. As this provides the direction for targeted support there is a need to retain some degree of assessment. The preferred option would be that each university continues to offer a subsidised full diagnostic assessment. If this is not available, the university should introduce an alternative format that will provide sufficient detail of the student's individual profile

that it can be used to plan their support needs. There are cost implications in offering this, however the link between higher student attrition and dyslexia is well documented, (Richardson and Wydell 2003, Quinn 2013). It is therefore prudent for universities to fund this as a strategy to promote student success and reduce attrition.

The previous section on academic practice emphasised the importance of academic staff having a real understanding of dyslexia, how it might present in students at different stages of their academic journey and strategies they could use to support students. This is likely to require policy change in order to make it happen. The *Dyslexia Friendly Schools* initiative has been in place within pre-16 education for many years. Sir Jim Rose, a former head of OfSTED, proposed that all existing teaching staff within schools received help to increase their understanding of dyslexia, (Rose 2009). To do this he recommended that every school should have access to a specialist to provide in-service education and advise colleagues. It is now time for universities to follow this example. It is therefore proposed that each organisational unit within a university, whether at a faculty, school or discipline specific level has a named dyslexia specialist to support them. This individual would work in close collaboration with subject staff, sharing their knowledge but also developing their own understanding of subject specific nuances.

In addition to the support that this individual would provide, staff understanding needs to be developed through curriculum change to ensure that all PCAP programmes contain content related to dyslexia. There also needs to be a strong drive from each Vice Chancellor to promote attendance at staff development sessions. These strategies will not only benefit students but can be used as a marketing tool by universities to attract students. The British Dyslexia Association offer *Dyslexia Friendly* accreditation, which recognises the provision of high quality education and practice for those with dyslexia. Implementation of the strategies proposed within sections 6.3 and 6.4 will help universities to achieve this status.

6.5 Implications for future research

This study has provided significant new insights into factors that influence students' decisions on whether to be assessed for dyslexia, but has also exposed gaps in understanding which need to be addressed. The following areas of research would help to address this and further enhance the student experience.

The concept of a successful academic-self came across strongly in my study, even when there was evidence of the student struggling in some areas. Further research into student perceptions of how well they are doing, and whether this is reflected in the grades they achieve would enhance understanding in this area.

The degree to which students expected academic staff to recognise signs of dyslexia, particularly when marking assignments, was interesting. The fact that staff had not suggested it was instrumental in several students discounting it as a possibility. This is a key area to explore, to examine how equipped academic staff feel to do this and how students would react if the suggestion were made as part of their feedback.

There is a need for targeted research to explore specific professional groups and how far career choice might impact on a students' decision to be assessed for dyslexia. From the preliminary data gathered in this study the areas requiring future research are related to Law, Teaching and Medicine.

The research demonstrated that students were contemplating being assessed across the entire academic journey, with approximately 20% undertaking Postgraduate level programmes. The sampling frame, using random numbers, meant that none of the students in group A, who had been assessed, were on a PGT or PGR programme. It would therefore be interesting to explore why postgraduate students decide to be assessed.

The impact of scoring on standardised tests, and in particular percentile scores, was found to significantly impact on some students. Although peripheral to the focus of this research, it is an area which warrants further exploration.

Although the issue of 'disability identity' did not emerge from my findings, the fact that students who were deterred by the notion of being labelled as disabled, would not have chosen to complete the survey, needs to be acknowledged. There are currently no published studies which have explored disability identity in non-dyslexic students. This is an area which would be interesting to investigate although identifying the population of interest would be extremely challenging.

6.6 Summary of recommendations

The last three sections have identified a range of recommendations for future academic practice, local and national policy development and finally future research. These are summarised below as a blueprint for action.

6.6.1 Academic Practice

1. Introduction of specialist staff development sessions for all academic staff in order that they can recognise potential signs of dyslexia and signpost students to support.

2. The inclusion of specialist teaching on dyslexia within PCAP programmes to prepare new academic staff for their future role.
3. The creation of prompts that academic tutors/research supervisors could use within 1:1 sessions with students to help reveal undisclosed difficulties.
4. Provision of activities during Dyslexia Awareness week to increase student awareness and understanding.
5. Use of posters and electronic platforms to encourage student to evaluate their own study skills and the effort they are needing to put in, to highlight difficulties that might be associated with dyslexia.
6. Provision of faculty-based support to increase accessibility and address profession specific issues.
7. Introduction of student mentors, who have themselves chosen to be assessed, to provide an informal support network.
8. Development of profession specific resources that students can access when considering requesting an assessment; and use as a source of support following diagnosis.

6.6.2 Local and national policy

Inevitably local and national policies overlap, with the potential to make local change whilst campaigning for national policy development. The following list therefore indicates where policies are local (L) or national (N) or should be addressed at both levels.

1. That universities and specialist organisations continue to campaign for the retention of a subsidised full diagnostic assessment. (L&N)
2. If a full diagnostic assessment is not available at a reduced rate, that universities introduce an alternative format that provides sufficient detail of the student's strengths and areas of difficulty to facilitate targeted support. (L)
3. That every university works to achieve the British Dyslexia Associations Dyslexia Friendly accreditation. (L)
4. That each department within a university, at either a faculty, school or subject specialism level, has a named specialist dyslexia advisor to support academic staff. (L)
5. In order to help achieve dyslexia friendly accreditation that PCAP programmes include specific teaching on dyslexia. (L&N)
6. That Vice Chancellors promote attendance at staff development sessions on dyslexia and inclusive teaching for all academic staff. (L)

6.6.3 Future research

The following areas, discussed in section 6.5, are key areas for future research.

1. Research into how academic self-concept is shaped, focussing on how well students perceive that they are doing and the correlation between this and the grades they receive.
2. An exploration of how equipped academic staff feel to recognise signs of dyslexia, particularly when marking assignments, and how students would perceive feedback that suggested that they consider being assessed.
3. Targeted research to explore specific professional groups and how far career choice might impact on a students' decision to be assessed for dyslexia, focussing specifically on Law, Teaching and Medicine.
4. Research exploring reasons why postgraduate students consider being assessed at such a late stage of their academic journey.
5. An exploration into the psychological impact of percentile scores, achieved through standardised tests, on adult learners.
6. Research into students' perception of 'disability identity' specific to dyslexia, in students who are not known to be dyslexic.

6.7 Plans for dissemination

Preliminary findings from the research have been shared at the 5th European Dyslexia Association International Conference at Modena, Italy in September 2016. Future plans for dissemination therefore include submitting abstracts for conferences held by the Association of Dyslexia Specialists in Higher Education (ADSHE) and those focussing on student support in Higher Education. In addition a range of staff development sessions are planned for staff from Student Support Services and across academic faculties. The research findings will also be used within academic publications, presenting both the findings and aspects of the methodology. One specific paper will address the need to create inclusive research strategies in order that groups of students are not inadvertently excluded by issues such as questionnaire design.

6.8 Potential limitations of the study

Polit and Beck (2004) identified that researchers face numerous challenges when conducting research. These inevitably lead to compromises being made, which if not carefully considered could affect the quality of the results. The reflexive approach adopted throughout the research enabled me to both identify potential limitations to the study and critically evaluate their impact.

The first area considered was that the students who chose to participate in the survey may not have been representative of the wider university population. This was something that had been recognised from the outset and was not judged to be a limitation, although it does impact on transferability of the findings. The primary purpose of the i-survey design had been to identify if there was a population of students who had considered being assessed, which it was able to do. The characteristics of this group were interesting to explore but may not be replicated in the wider university population. It was also acknowledged that there may have been an additional group of students who had considered being assessed but who were not willing to disclose this for whatever reason. The study only identified a very small number of students who had chosen not to go ahead for fear of labelling or perceived stigma. It is likely that students who were deterred for these reasons may have chosen not to respond to the survey and therefore the true impact of these factors has not been fully explored.

A further factor was that data collection extended over a longer time period that originally planned. This was due to a desire to avoid periods when students were on leave or preparing for mid-year or final exams. Selection of students to participate in phase 2 through the use of random numbers, followed by a low response rate, meant that several successive groups of students had to be invited to participate in the interviews before an adequate sample was achieved. Again, this was not judged to be a limitation, although it did generate anxiety for me as a researcher and is something that I would approach differently in future research.

One area that did emerge as a limitation was that within the i-survey students were asked if they had ever considered being tested for dyslexia, but were not asked why. This had been a deliberate decision when planning phase 1 in an attempt to keep the questionnaire as short as possible. As the primary focus of the survey had been to discover why students had decided not to go ahead, which it successfully achieved, it did not compromise the findings. It would have been interesting however, to know what had made these students even consider being tested; particularly for those who had stated that it was not necessary. As previously discussed this was a key finding of the research, with students frequently sharing lengthy explanations of why they decided it was not necessary; the question that remains unanswered therefore is why they ever contemplated it?

The final limitation is linked to one of the study's strengths. In order to obtain a wide view of student feelings across different subject areas and stages of their educational journey the research was open to any student across the entire university. This provided invaluable insights but meant that it was impossible to identify specific characteristics related to sub groups. Whilst this could be considered a limitation of this study, it has exposed the issues and provided a springboard for future research into the feelings and

behaviour of specific groups. This could focus on those contemplating certain career pathways, or on Post Graduate students.

6.9 Personal reflections on the journey

Reflecting on the personal journey whilst completing this research there have been the inevitable highs and lows. The early years were often filled with frustration as the scope and scale of the research took shape. Looking back now the wise words of my supervisor who reminded me that I was "putting one brick on the wall", when my enthusiasm was in danger of creating an unmanageable project, has ensured that I got to the end. My understanding of research has grown exponentially, as has the pile of papers read but not directly incorporated. The highs were when I emerged from Schon's swampy lowlands (1983) and saw the way forward, both in the design of the study; and then following years of analysis, when the final picture emerged. Inevitably this research has highlighted areas that need further investigation and I hope to continue my research journey by exploring some of these.

6.10 Conclusions and overall summary

This study was originally devised after reading research by Wray et al (2008) when they examined the impact of a dyslexia screening programme for a cohort of student nurses. One of their most notable findings was that, of the 69 students identified through the screening as being at risk, 48% chose not to go on to be assessed. Reasons behind this were not explored within their study. Until now there has been no explanation as to why students decide to be assessed or, having contemplated it, decide not to. The exploratory qualitative nature of this study has provided answers, identifying that the majority of students decided that it was not 'necessary'.

The main reason behind this was that students perceived that they were doing okay, either based on their current studies, or reflecting back on their previous experience of academic success. This notion of a a successful academic self-concept was extremely strong and there was evidence that students frequently suppressed any difficulties that they were experiencing, until they reached a tipping point. This had previously been identified by Weiner (2010) in his Attribution Theory. He described how students were prompted to seek help either as a result of failing something or receiving a poor mark unexpectedly; or when an assessment was perceived as particularly important. My findings reinforced his earlier work, confirming that that until the stimulus is strong enough that students will not even try to seek an explanation or obtain support.

Where students did recognise that they had a need, dyslexia was often discounted as they had a poor understanding of the complexity of the condition. Students frequently referred to areas of literacy including spelling and reading that the lay public associate with dyslexia. They dismissed the notion of dyslexia if they did not personally struggle in these areas. Their understanding was often shaped by contact with friends and family members who were dyslexic. If they perceived their own difficulties to be different, or less severe, they again discounted dyslexia as a possible cause. There was evidence however that 16% of those who gave reasons as to why they had not gone ahead with an assessment, were experiencing difficulties characteristic of dyslexia. These were often higher level cognitive skills, linked to executive functioning, that would have only been called upon at university, hence the lack of public awareness that these are affected.

The other key finding related to the influence of others, particularly academic staff. Students expected academic staff to alert them to the possibility of dyslexia, and again discounted it if this had not happened. For the students studied who had been assessed, and who served as a comparison, all of them had been prompted to be assessed by academic staff. The importance of academic staff understanding the complex nature of dyslexia, in order to be able to guide and support students was therefore firmly established.

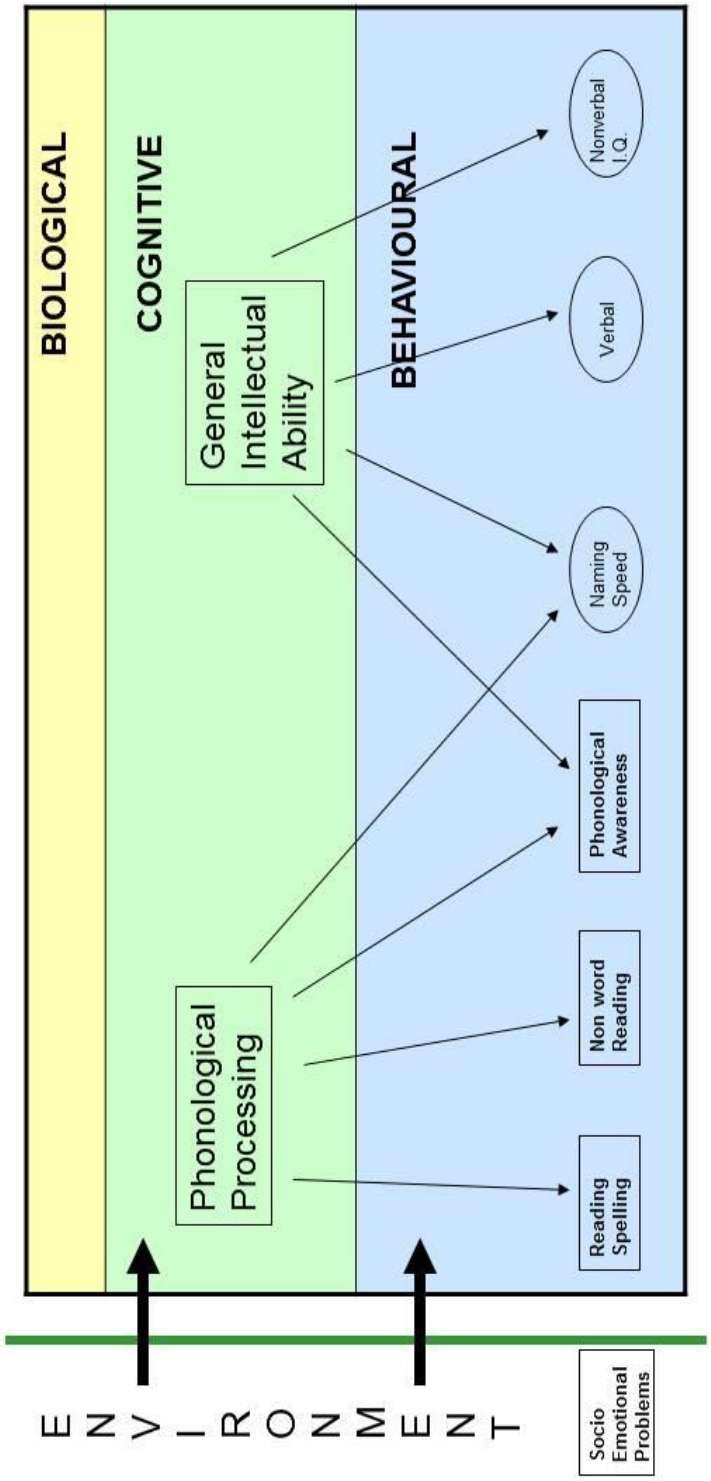
As anticipated, although previously never explored, there were a multitude of factors which influenced the students' decision making. Many of these were intrinsic but the influence of external factors was also evident. The insights gained through this research will enable academic staff to reduce potential barriers and provide more effective support to students contemplating an assessment.

Finally, whilst some students will always be reticent, the words of one student who shared their story within the research should act as encouragement for others.

"Good things can come if you get diagnosed with it…
You can find different ways of working that will help you.
That work for you."
(AA01/UG1)

Appendices

Appendix 1: Morton and Frith Causal Modelling Framework (1985)



Appendix 2: Range of difficulties frequently associated with dyslexia

(Taken from Cowen 2010b)

Memory difficulties

- May take longer to 'fix' information into their long-term memory
- May require information to be presented more than once
- Dyslexic people often find it more difficult to discard irrelevant or redundant information which could lead to 'memory overload' and confusion.
- May have problems remembering colleagues or patients names, drug names and medical conditions
- May find it difficult to remember phone messages or other information to pass on to colleagues
- May find it difficult to learn routines and procedures
- May find it difficult to transfer learning into a new setting

Organisational difficulties

- May appear to have a short attention span and be easily distracted
- May have difficulty following instructions
- May have difficulty in ordering their ideas
- May have problems sequencing the order of tasks correctly
- May have problems with filing and looking up information alphabetically or sequentially
- May find it difficult to react quickly in busy environments
- May find it difficult to multitask as this requires a good memory, time management skills as well as the ability to work sequentially and be organised

Time management - individuals with dyslexia may find it difficult to:

- Plan ahead or plan their work schedule
- Estimate how much time is needed for a specific task
- Complete tasks on time
- Students may find it difficult to balance coursework and placement commitments

Reading - individuals with dyslexia may:

- feel embarrassed about reading aloud
- misread unfamiliar words
- read very slowly and find scanning or skimming difficult
- find text is distorted, particularly black print on white
- find it difficult to read with noise distractions
- have difficulty understanding medical and pharmacological language particularly those words which look or sound similar
- have difficulties with abbreviations
- have difficulty reading information from whiteboards
- have difficulty reading information on charts

- need to re-read things several times to get the meaning

Writing and spelling - some individuals may have difficulty with

- legibility
- writing in an appropriate language
- writing concisely
- writing accurately their work may contain frequent spelling and grammatical errors
- writing under time pressure, some individuals may write very slowly and need to re-draft their work
- spelling technical terms such as drugs and medical terms, especially those which look or sound similar
- identifying numbers and letters and / or getting them in the correct order
- filling in forms, especially when required to do so at speed

Language –some individuals may:

- feel embarrassed about language
- struggle to find the right word to say
- mispronounce unfamiliar words
- find it difficult to express themselves orally and talk in a disjointed way
- find it difficult to give clear instructions and / or information and have a tendency to 'go off on a tangent'
- sometimes experience a 'mental block' and be unable to express ideas clearly, particularly under stress
- take everything 'literally' or at face value (beware of words with double meanings)

Motor skills

- May have right and left co-ordination difficulties
- Some students may take much longer to learn to follow a sequence, eg wound dressing

Appendix 3: Methods of establishing rigour in research

Based on ideas from Lincoln and Guba 1985, Cook 1985, Polit and Beck 2004

Qualitative Terminology	Quantitative Terminology	Techniques used in this study	Purpose
Credibility / trustworthiness	Validity	• Expert peer review of content validity for the questionnaire and topic areas for the interviews. • Acquisition of sufficient data to provide strong results through determination of an adequate sample size. • Two phase data collection to provide breadth and depth of data. • Quotes from respondents used to illustrate qualitative data.	Provides confidence in the truth of the data and interpretation of it by ensuring that: • Salient data is collected • Intrinsic/ extrinsic bias is eliminated/ minimised
Dependability / Confirmability	Reliability	• Systematic method of data analysis. • Use of analytic memos. • Reflective analysis of each phase	Demonstrates stability over time and over conditions
Transferability	Generalisability	• Provision of a detailed account of the methods employed throughout the study. • Use of an online survey for phase 1 allowed a large sample group to be studied, reflecting the diverse student population across the university. • Inclusion of students from different subject disciplines and at UG, PGT and PGR level	To provide sufficient detail to allow others to judge potential applicability. A large sample reflecting students at all levels/ from different subjects facilitates transferability of findings.
Acknowledgement of bias	Elimination of bias	• The detailed account of the methods employed facilitates a critical review by outside audiences.	To demonstrate the objectivity and neutrality of the data and how it was interpreted.

Appendix 4: I-Survey questionnaire

Project title : What factors influence university students' decision on whether or not to be assessed for dyslexia? (original title)

Previous research has highlighted that a significant number of University students are diagnosed with dyslexia after they have commenced their degree. Researchers at the University of Southampton are keen to understand why this is, and have designed a multi stage research project to explore factors which may contribute towards this.

This first phase aims to establish exactly how many students have ever considered being tested for dyslexia and of these what proportion have gone on to be assessed. It would be very helpful if you would agree to complete the on line survey which should take no longer than 2 minutes to complete.

All responses will be completely anonymous and stored in accordance with the University regulations on research data. The final question will invite you to consider being involved in phase 2 and it is only if you agree to this that you would be asked to provide contact details.

If you have any questions regarding any aspect of the study please do not hesitate to contact me by email at mdc4@soton.ac.uk or by telephone on 023 8059 7854, thank you. Michelle Cowen

Concerns / complaints

If you have a concern or complaint about this study you should contact Martina Prude, Head of the Governance Office, at the Research Governance Office (Address: University of Southampton, Building 37, Highfield, Southampton, SO17 1BJ; Tel: +44 (0) 23 8059 5058; Email rgoinfo@soton.ac.uk) If you remain unhappy and wish to complain formally Martina can provide you with details of the University of Southampton Complaints Procedure.

Declaration of consent

Please tick (check) this box to indicate that you consent to taking part in this survey.

(survey set up so that unless this box is ticked the student cannot proceed with the survey)

Please answer the following questions by ticking the relevant box. In some instances this will lead to a further question to clarify your answer.

Questions

1. **Please indicate what level of course you are studying.**

[ ]Foundation Degree

[ ] Diploma / Advanced Diploma

[ ]Undergraduate Degree

[ ]Post Graduate Taught Degree

- [ ] M Res
- [ ] Maters level
- [ ] Doctoral level

[ ] Post Graduate Research Degree
- [ ] M Res
- [ ] M Phil
- [ ] MPhil / PhD (prior to upgrade viva)
- [ ] PhD (following upgrade viva)

2. What year of study you are currently in?

[ ]Year 1

[ ]Year 2

[ ]Year 3

[ ]Year 4

[ ]Year 5

[ ]Year 6

[ ]Other …….. please list

3 Are you Full time [ ] or Part time [ ]

4 What Faculty are you studying in?

[ ]Faculty of Business and Law

[ ]Faculty of Health Sciences

[ ]Faculty of Medicine

[ ]Faculty of Humanities

[ ]Faculty of Natural and Environmental Sciences

[ ]Faculty of Physical and Applied Sciences

[ ]Faculty of Social and Human Sciences

[ ]Faculty of Engineering and the Environment

[ ]Unsure
- ……. Please indicate what subject you are studying

Free text box

5. Have you <u>ever</u> been tested for dyslexia?

Yes [ ]

No [ ]

Unsure [ ]
- ……. Can you explain why you are unsure?

Free text box

(Questions 6 and 7 were linked to Q5 and only appeared to respondents who answered yes)

6. Was this prior to starting at university or whilst you have been here?

[ ]Before starting at University

[ ] During a previous University course

[ ] Whilst I have been on my current programme

- ……. What year of study were you in when you were tested?

  [ ] 1

  [ ] 2

  [ ] 3

  [ ] 4

  [ ] other please indicate

7. Were you found to be dyslexic?

[ ] Yes

[ ] No

8. If you have <u>not</u> been tested have you <u>ever</u> thought about having an assessment done?

[ ] Yes

- …… Why did you decide not to be assessed?

Text box for free text answer

[ ] No

9. Thank you for answering this questionnaire. The next phase of the research will involve one to one interviews with selected students to explore their answers in more depth – these are expected to last between 45 minutes and 1 hour. **Please indicate below if you would be willing to be involved in an individual interview.**

[ ] No I would not be willing to be interviewed for phase 2

- ……. Thank you for time in completing this survey and good luck with the remainder of your course.

[ ] Yes I would be willing to be interviewed for phase 2

- …… Thank you. Please provide your email address and telephone number below so that I can contact you and whatever name you would like to be called by (this does not have to be your actual name just something I can use when I call / email you).

Text box for free text answer – chosen name

Text box for free text answer – email address

Text box for free text answer – telephone number

Students who have ticked the yes box received the following message.

What happens next?

Thank you for volunteering to participate in phase 2. Everyone who volunteered will be allocated a personal identification number, which will be used to select students at random from across the University. This random selection will take place during late November following which I will contact you to let you know if you are needed or not. It is anticipated that interviews will take place between January and April 2013, avoiding examination or heavy assessment periods.

If you are asked to participate in the face to face interviews you will be sent detailed information and a copy of the consent form at that stage in order that you know exactly what you are signing up to. You can choose to withdraw from the study at any stage and do not need to give a reason why.

Appendix 5: Electronic advert on university student portal

Have you ever been tested for dyslexia or thought about being tested?

I am conducting a research study to explore what factors influence university students' decisions on whether or not to be assessed for dyslexia and am looking for volunteers to take part.

Phase 1 – aims to establish exactly how many students have ever considered being tested for dyslexia, and of these what proportion go on to be assessed. It consists of a short on-line questionnaire which takes about 2 minutes to complete.

The survey can be accessed by logging onto www. isurvey.soton.ac.uk/6787 or following the link on the SUSSED noticeboard.

The electronic survey is open to any University of Southampton student whatever level of study you are doing and will be live between

Monday 28th January and Friday 15th February 2013

More information about the purpose of the study is available on i-survey. The survey is totally anonymous and you are under no obligation to take part ..... But I would be very grateful if you do.

Thank you

Michelle Cowen, Faculty of Health Sciences
mdc4@soton.ac.uk Tel 023 8059 7854

Appendix 6: Poster displayed to recruit participant to phase 1

Have you ever been tested for dyslexia or thought about being tested?

I am conducting a research study to explore what factors influence university students' decisions on whether or not to be assessed for dyslexia and am looking for volunteers to take part.

Phase 1 – aims to establish exactly how many students have ever considered being tested for dyslexia, and of these what proportion go on to be assessed. It consists of a short on-line questionnaire which takes about 2 minutes to complete.

The survey can be accessed by logging onto www. isurvey.soton.ac.uk/6787 or following the link on the SUSSED noticeboard.

The electronic survey is open to any University of Southampton student whatever level of study you are doing and will be live between

Monday 28th January and Friday 15th February 2013

More information about the purpose of the study is available on i-survey. The survey is totally anonymous and you are under no obligation to take part ..... But I would be very grateful if you do.

Thank you

Michelle Cowen, Faculty of Health Sciences
mdc4@soton.ac.uk Tel 023 8059 7854

Appendix 7: Email sent to gatekeepers

Recruitment email sent to:

- Student Union Academic Presidents / Vice Presidents for each Academic Unit / Faculty
- Faculty Education Managers
- Student Services

Email title : dyslexia screening survey

Dear …..

I am emailing to ask for your help in publicising a research project which I am conducting. My name is Michelle Cowen and I am a lecturer within the Faculty of Health Sciences where I am currently registered for an MPhil / PhD. The project title is "What factors influence university students' decisions on whether or not to be assessed for dyslexia?"

We know from previous research that a significant number of University students (43%) are diagnosed with dyslexia after they have commenced their degree. However, what is not currently known is how many students think about being assessed for dyslexia but do not go ahead and request a screening. I hope that this study will not only reveal this, but also allow me to understand the complex decision making process which underpins it. By examining factors which have encouraged or deterred students from requesting an assessment it will be possible for the university to devise strategies to support future students making this decision. This will hopefully enable the students to seek a diagnosis much earlier, receive appropriate support and have a positive effect on their studies.

The study is open to any student registered with the University and will have three phases. The first phase aims to establish exactly how many students have ever considered being tested for dyslexia, and of these what proportion have gone on to be assessed, through a short on-line questionnaire. This should take most students no longer than 2 minutes to complete. The survey can be accessed by logging on to www.isurvey.soton.ac.uk and selecting the survey entitled "What factors influence university students' decisions on whether or not to be assessed for dyslexia?" The final survey question will ask students if they are willing to be involved in the second phase, where one to one interviews will be used to gather qualitative data.

The study has been given ethical approval via the ERGO process and the survey is scheduled to go live on Monday 28th February 2013 and will remain active for a period of 3 weeks.

It would be really helpful if you could display the attached poster. Hard copies can be provided – please let me know how many you require and who to send them to.

Thank you Michelle

If you have any questions regarding any aspect of the study please do not hesitate to contact me by email at mdc4@soton.ac.uk or by telephone on 023 8059 7854 Michelle Cowen, Faculty of Health Sciences.

Appendix 8: Email sent to Associate Deans

Dear

I am writing to ask permission to access students within your faculty for a research project I am undertaking which has recently secured ethical approval via ERGO. Knowing how busy you are I have tried to keep this very brief but would be delighted to supply more detailed information if you require it. I have also attached the ERGO submission form which gives a brief summary, but from a mainly ethical standpoint, and a shortened version of the protocol which gives you a bit more background information.

The purpose of the study is to identify factors which influence a university student's decision making when deciding whether or not to be assessed for dyslexia. We know from a previous national study that approx. 43% of students with dyslexia are identified whilst at university. Any delay in being formally diagnosed will mean that students do not receive the support they require in a timely manner, and there is anecdotal evidence that a significant number of students are only diagnosed following academic failure.

If we fully understood the reasons behind a delayed diagnosis it is likely that we could put in place strategies which would enable us to offer support and thereby maximise the students' potential. I am particularly interested in learning more from students who have thought about being tested but have not gone on to do so.

The ethics committee have approved my methodology which consists of two phases at this time, a further phase will be planned once the data has been analysed. Phase 1 consists of an online survey which takes 1-2 minutes to complete. I would like to invite all UoS to participate in this phase to provide baseline quantitative data. Phase 2 will consist of in-depth qualitative interviews with 24 volunteers selected via the online survey. These will be sampled from across all faculties using a formulae described in the attached summary.

Once I have hopefully obtained permission from you as Associate Dean I will liaise with your Faculty Education Manager and Faculty Academic President regarding publicity for the study. The intention is for this to go live on Monday 28th January after the semester 1 exam period. I would therefore be very grateful if you could reply to this email confirming that you agree to inclusion of students from the Faculty of …….. within the study.

Thank you and best wishes

Appendix 9: Topic areas explored through the interviews

The interviews used a semi structured format to allow the participant to control the conversation flow. The following checklist and prompts were used to ensure coverage of all of the required topic areas.

Universal prompts such "How did you feel about that?" and "Can you tell me more?" were also used as necessary to gently probe.

Group A Interviews

Topic areas to explore within the interview: Group A - for use with students who have been assessed for dyslexia whilst at university.	
Topic area	Prompt questions if required
Topic area 1 : What has led the student to come forward for screening.	
Why have they chosen this particular point in their programme to come forward.	Was there a particular reason why you decided to get tested now?
Whether the decision is linked to them failing something or experiencing difficulties with academic work.	How is your course going? Do you find the work difficult?
Have they had any hesitation in coming forward, and if so why. aim to explore issues such as: • Labelling • the impact of the diagnosis on future career prospects, • being given a diagnosis which counts as a 'disability' • practical concerns such as the financial cost of being assessed.	Did you have any concerns about being tested?
Have they ever considered being screened before and if so why did they not proceed at that time?	Have you ever thought about being screened before? Why did you decide not to at that time?
Topic area 2 : How much does the student understand about the nature of dyslexia ie do they recognise potential symptoms in themselves?	
How much do they know about dyslexia? aim to explore issues such as: • Do they have a deep or superficial understanding of dyslexia. • Where have they found out information from (friends / family / tutors / support services/ internet / other)	How much do you know about dyslexia? Where did you find that out?
Have they got friends / family members who have it and if so have they compared their symptoms to those of others?	Have you got any friends / family members who are dyslexic? Have you talked to them about it?
If dyslexia has been considered and discounted in the past was this due to a superficial understanding of the nature of dyslexia by themselves or others? (ie a focus on reading, writing and spelling difficulties)	You said that you had considered being tested before..... was your decision not to based on what you think dyslexia is? Did anybody else influence this?
Topic area 3 : What part have others played in influencing their decision to go forward for	

screening?	
Was it purely their decision to come forward for screening or have they been influenced by others?	Was it your decision to be screened or did anyone suggest it?
If so who influenced them, friends, family, academic staff, student union?	Who? Did you talk to…. Friends…. family, academic staff….. student union or anyone else (weave into discussion not to be asked as a list)
How important was the advice / opinion of others?	How important was other peoples advice?
If they have been advised to seek assessment did they proceed straight away or take some time to reach a decision?	You said that X suggested you being screened, did you go ahead straight away or wait a while? Why was that?
Topic area 4 : Information about screening	
How did they find out information about screening?	How did you find out about the screening? Did you have enough information? If they say no – what else would you have liked to know?

Group B Interviews

Topic areas to explore within the interview: Group B - for use with students who have considered being assessed for dyslexia whilst at university but did not go ahead.	
Topic area	Prompt questions if required
Topic area 1 : Why did they decide not to go forward for an assessment?	
Why did they think about being assessed for dyslexia before?	Why did you think about being assessed before? How long ago was that?
Why did they decide not to go forward for assessment?	Was there a particular reason why you decided not to get tested? Do you think you will even go forward for testing in the future? What would influence that?
How are they doing academically / are they failing or experiencing difficulties with academic work.	How is your course going? Do you find the work difficult?
Have they had any hesitation in coming forward, and if so why. aim to explore issues such as: • Labelling • the impact of the diagnosis on future career prospects, • being given a diagnosis which counts as a 'disability' • practical concerns such as the financial cost of being assessed.	Did you have any concerns about being tested?
Have they ever considered being assessed before and if so why did they not proceed at that time?	Have you ever thought about being assessed before? Why did you decide not to at that time?
Topic area 2 : How much does the student understand about the nature of dyslexia and did that influence their decision not to be tested?	
How much do they know about dyslexia? aim to explore issues such as: • Do they have a deep or superficial understanding of dyslexia. • Where have they found out information from (friends / family / tutors / support services/ internet / other)	How much do you know about dyslexia? Where did you find that out?

Have they got friends / family members who have it and if so have they compared their symptoms to those of others?	Have you got any friends / family members who are dyslexic? Have you talked to them about it?
If dyslexia has been discounted was this due to a superficial understanding of the nature of dyslexia by themselves or others? (ie a focus on reading, writing and spelling difficulties)	Was your decision not to be tested based on what you think dyslexia is? Did anybody else influence this?
Topic area 3 : What part have others played in influencing their decision not to go forward for assessment?	
Was it purely their decision not to go forward for assessment or have they been influenced by others?	Was it your decision not to go ahead with a dyslexia assessment? Did anyone else offer an opinion? Who was that and what did they say?
How important was the advice / opinion of others?	How important was other people's advice?
If they have been advised to seek assessment why did they not proceed?	You said that X suggested you being assessed for dyslexia, how did you feel about that? Was that why you decided not to be tested?
Topic area 4 : Information about a dyslexia assessment	
How did they find out information about the dyslexia assessment?	Did you try and find out anything about a dyslexia assessment? Did you have enough information? If they say no – what else would you have liked to know? Did this influence your decision? How was that?

Appendix 10: Sampling frame phase 2

Faculty	Approx no of UG students	Approx no PG students	Approx no students in faculty	Intended sample Group A	Intended sample Group B	No of volunteers group A	No of volunteers group B	Completed group A	Completed group B
A	2150	1100 taught 150 research	3400	2	2	1	9	1	1
B	2400	480 taught 100 research	2980	2	2	4	37	2	1
C	1250	80 taught 140 research	1470	1	1	3	28	0	1
D	2500	250 taught 200 research	2950	2	2	1	6	0	1
E	1560	50 taught 340 research	1950	1	1	2	34	1	0
F	1143	290 taught 369 research	1802	1	1	1	7	1	1
G	3610	1240 taught 410 research	5260	2	2	2	24	1	2
H	1560	300 taught 370 research	2230	1	1	0	1	0	0
Total				12	12	14	146	6	7

Appendix 11: Ethical approval

From: ERGO <ergo@soton.ac.uk>

Sent: 26 November 2012 11:45

To: Cowen M.D.

Subject: Your Ethics Submission (Ethics ID:2236) has been reviewed and

approved

Submission Number: 2236

Submission Name: What factors influence university students' decisions on whether or not to be

assessed for dyslexia?

This is email is to let you know your submission was approved by the Ethics Committee.

You can begin your research unless you are still awaiting specific Health and Safety approval

(e.g. for a Genetic or Biological Materials Risk Assessment)

Comments

1.Thank you for your revised submission. I am happy to approve. Good luck with the study!

Click here to view your submission

ERGO : Ethics and Research Governance Online

http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Appendix 12: Methods employed to maintain anonymity

Due to the nature of the research, involving face-to-face interviews it was inevitable that participant's identities would emerge during the data collection period. To ensure that all identities were protected and that no respondent could be identified by anyone reading the interview transcripts or final thesis, the following steps were taken:

1. The first phase, delivered via 'I survey', was designed to be totally anonymous unless the student offered to participate in phase 2.
2. Respondents offering to participate in phase 2 were asked to provide an e-mail address[62] and contact telephone number. They were also asked to choose a name by which they wished to be addressed for the purposes of telephone contact[63]. This did not need to be their correct name and could be a fictitious character.
3. Potential participants who volunteered for phase 2 were allocated a code to identify their faculty, whether they were in group A (have undergone a dyslexia assessment) or group B (have not) and a personal identification number. This identification code is recorded on their consent form but this is the only place where their true identity and identification code are recorded together.
4. Consent forms have been stored in accordance with University of Southampton guidelines separately from the interview transcripts.
5. Interview transcripts and i-survey data have only be identified by the personal code.

[62] This could be a non-university email address if desired to protect their identity.

[63] This was to enable me to check that the person answering the phone was the correct person.

Appendix 13: Participant information sheet group A

UNIVERSITY OF Southampton

Project information Sheet

My name is Michelle Cowen and I am a Lecturer in the Faculty of Health Sciences and am currently undertaking a PhD. I am interested in why students come forward for a dyslexia screening and would like to invite you to take part in the research. The title of the research is:

What factors influence university students' decisions on whether or not to be assessed for dyslexia?

What is the research about?

The research has been designed to help me understand why some students decide to be assessed for dyslexia at a particular point during their studies. I am also interested in why having thought about being tested, other students decide not to go ahead with it. I hope that the research will also reveal what sort of things influence these decisions.

Why is it being done?

By understanding how students reach a decision it will allow university staff to do more to support future students in a similar situation.

What do you need to do?

Firstly, it is really important that you understand exactly what this is about and what you are considering agreeing to. If you have any questions at all please contact me and I can explain things a bit more before you make a decision. My telephone number is 023 8059 7854 or you can e mail me on mdc4@soton.ac.uk

If you agree to be involved you will be asked to participate in a face to face interview, to be held at a convenient location on campus. The interview will take place at an agreed date and time, avoiding examination or heavy assessment periods. It is anticipated that the interview will last between 45 minutes and 1 hour, depending on how much you want to say. I will have a series of topic areas to explore in order that I can begin to understand a bit more about why you decided to come forward for a dyslexia assessment whilst at Southampton and what influenced your decision. I will need to record the interview on a digital voice recorder to allow me to really listen properly but I intend the meeting to be quite relaxed and informal.

All of the information you share with me will be identified only by a code number which you will be assigned. There will be no way that anyone could identify who you are and all information will be treated in strictest confidence.

Do I need to take part?

No, you are under no obligation to take part at all, and if you decide that you are willing to be involved you can still withdraw at any stage without needing to give a reason. The support you receive by both Enabling Services and staff within your faculty will be exactly the same whether you take part or decide not to.

What will happen to the data you obtain?

After the interviews the audio recording will be transcribed and labelled with the individual code allocated to you. This code will be used as the sole means of identifying individuals. An electronic version of the audio recording and subsequent transcript will be stored on a University of Southampton computer which is password protected. The coded consent forms will be stored in a locked drawer in the researcher's office within the Faculty of Health Sciences. This area can only be accessed via an entry card swipe system.

Research data will kept in accordance with the University Research Governance policy (currently 10 years) and the Data Protection Act.

Findings from the research may be published in the future and be presented at conferences / staff development sessions but you will be in no way identifiable. You will need to give permission for data to be used in this way.

What are the benefits for me in taking part?

There may not be any direct benefit to you from taking part, but your contribution will be invaluable to others by helping us to understand why students decide to be tested for dyslexia or not. This will allow the University to identify ways in which it can support future students facing the same decision.

Summary of ethical principles and practice.

The study will be conducted respecting the principles of confidentiality and will follow the guidelines published by the University Research Governance Office. The full Ethics and Research Protocol is available; if you would like a copy please do not hesitate to ask me for one.

For further information or clarification of any aspect of the research please contact me, Michelle Cowen on mdc4@soton.ac.uk or by telephone on 023 8059 7854.

Concerns / complaints

If you have a concern or complaint about this study you should contact Martina Prude, Head of the Governance Office, at the Research Governance Office (Address: University of Southampton, Building 37, Highfield, Southampton, SO17 1BJ; Tel: +44 (0) 23 8059 5058; Email

rgoinfo@soton.ac.uk) If you remain unhappy and wish to complain formally Martina can provide you with details of the University of Southampton Complaints Procedure.

Appendix 14: Participant information sheet group B

UNIVERSITY OF Southampton

Project information Sheet

My name is Michelle Cowen and I am a Lecturer in the Faculty of Health Sciences and am currently undertaking a PhD. I am interested in why students come forward for a dyslexia screening and would like to invite you to take part in the research. The title of the research is:

What factors influence university students' decisions on whether or not to be assessed for dyslexia?

What is the research about?

The research has been designed to help me understand why some students decide to be assessed for dyslexia at a particular point during their studies. I am also interested in why having thought about being tested, other students decide not to go ahead with it. I hope that the research will also reveal what sort of things influence these decisions.

Why is it being done?

By understanding how students reach a decision it will allow university staff to do more to support future students in a similar situation.

What do you need to do?

Firstly, it is really important that you understand exactly what this is about and what you are considering agreeing to. If you have any questions at all please contact me and I can explain things a bit more before you make a decision. My telephone number is 023 8059 7854 or you can e mail me on mdc4@soton.ac.uk

If you agree to be involved you will be asked to participate in a face to face interview, to be held at a convenient location on campus. The interview will take place at an agreed date and time, avoiding examination or heavy assessment periods. It is anticipated that the interview will last between 45 minutes and 1 hour, depending on how much you want to say. I will have a series of topic areas to explore in order that I can begin to understand a bit more about why you decided not to be tested for dyslexia having considered doing so. I will need to record the interview on a digital voice recorder to allow me to really listen properly but I intend the meeting to be quite relaxed and informal.

All of the information you share with me will be identified only by a code number which you will be assigned. There will be no way that anyone could identify who you are and all information will be treated in strictest confidence.

Do I need to take part?

No, you are under no obligation to take part at all, and if you decide that you are willing to be involved you can still withdraw at any stage without needing to give a reason. The support you receive by both Enabling Services and staff within your faculty will be exactly the same whether you take part or decide not to.

What will happen to the data you obtain?

After the interviews the audio recording will be transcribed and labelled with the individual code allocated to you. This code will be used as the sole means of identifying individuals. An electronic version of the audio recording and subsequent transcript will be stored on a University of Southampton computer which is password protected. The coded consent forms will be stored in a locked drawer in the researcher's office within the Faculty of Health Sciences. This area can only be accessed via an entry card swipe system.

Research data will kept in accordance with the University Research Governance policy (currently 10 years) and the Data Protection Act.

Findings from the research may be published in the future and be presented at conferences / staff development sessions but you will be in no way identifiable. You will need to give permission for data to be used in this way.

What are the benefits for me in taking part?

There may not be any direct benefit to you from taking part, but your contribution will be invaluable to others by helping us to understand why students decide to be tested for dyslexia or not. This will allow the University to identify ways in which it can support future students facing the same decision.

However, as you are a student who has considered being tested but decided not to, the opportunity to talk about this may help you to decide if that was the right decision. During the research interview the researcher will not be able to enter into discussion about your personal situation but an opportunity will be provided after the interview is complete if you would like advice about what to do next.

Summary of ethical principles and practice.

The study will be conducted respecting the principles of confidentiality and will follow the guidelines published by the University Research Governance Office. The full Ethics and Research Protocol is available; if you would like a copy please do not hesitate to ask me for one.

For further information or clarification of any aspect of the research please contact me, Michelle Cowen on mdc4@soton.ac.uk or by telephone on 023 8059 7854.

Concerns / complaints

If you have a concern or complaint about this study you should contact Martina Prude, Head of the Governance Office, at the Research Governance Office (Address: University of Southampton, Building 37, Highfield, Southampton, SO17 1BJ; Tel: +44 (0) 23 8059 5058; Email rgoinfo@soton.ac.uk) If you remain unhappy and wish to complain formally Martina can provide you with details of the University of Southampton Complaints Procedure.

Appendix 15: Consent form

UNIVERSITY OF Southampton

Participant consent form – individual interviews

Project title : What factors influence university students' decisions on whether or not to be assessed for dyslexia?

	Please initial box
I confirm that I had read and understood the information letter and have had the opportunity to ask questions.	
I understand that anything I say within the interview is confidential and that there will be no communication between the researcher and staff from my faculty in relation to what we have discussed.	
I understand that I may withdraw from the research at any time, by contacting the researcher by phone or e mail, without needing to give a reason.	
I understand that the interview will be recorded on a digital voice recorder and that the audio record will then be transcribed for the purposes of the research.	
I understand that findings from the research may be published and / or presented at conferences / staff development sessions but that I will be in no way identifiable. I give my permission for data to be used in this way.	
I understand that my involvement in the research will not affect my educational programme in any way.	

Student signature: ..... Date: .....

Print name : .....

Researcher signature: ..... Date: .....

Appendix 16: Example of an analysis/coding sheet from phase 1

A10

504243	PGR	3	Full	Business		
I was suffering from blurred vision whilst reading but this decided this was most probably due to tiredness as it coincided with periods of heavy workloads and lack of sleep.					Probably just tired	Prob other reasons 63b.

A11

503186	UG	3	Full	Business		
I have always got good grades and have never really struggled with reading. I always double check my work so I don't see it to be necessary to have an assessment done.					Good grades No problems reading Double check work Not necessary	Does ok. 2a. Comparison expected issues 57c. Strategies in place. 4. Not necessary 40b.

A12

503243	UG	3	Full	Business		
do not think i have it as only very rarely mix up words and think its probably tiredness rather than dyslexia. also would feel silly and like im wasting time if I get the test and don't have it.					Occasionally mix up words Probably tiredness Would feel silly if not dyslexic Wasting time if not dyslexic	Exhibits/pretend symp. 60. Prob other reasons. 63b. Silly if negative. 47b Waste time/money 48b.

Appendix 17: Template used to create analytic memos

Analytic Memos – Prompt sheet

Prompts for analytic memos (Saldaña 2013)	My interpretation
Reflect on and write about how you personally relate to the participants and / or the phenomenon	Consider the connections between myself and the world I am studying. Examine my emotions, relationships, values, attitudes and beliefs about the phenomenon.
Reflect on and write about your study's research question	Interact with the research questions throughout the process of analysis
Reflect on and write about your code choices and their operational definitions	Review and revise the operational definitions
Reflect on and write about emergent patterns, categories, themes, concepts and assertions.	Consider how the codes get placed within themes. Are there alternative themes where the code might sit?
Reflect on and write about possible networks (links, connections, overlaps, flows) amongst codes, patterns, categories, themes, concepts and assertions.	Start to think about how the puzzle fits together.
Reflect on and write about an emergent or related existing theory	Consider how emergent ideas fit with the bigger picture. Relate to existing literature.
Reflect on and write about any problems with the study	Have there been any glitches in this phase of the study? What actions have been taken to rectify problems?
Reflect on and write about any personal or ethical dilemmas with the study.	Have there been any ethical dilemmas? How were these dealt with?
Reflect on and write about future directions for the study	Has anything been missed? Is any additional data required to help answer the research questions?
Reflect on and write about the analytic memos generated thus far.	Synthesise ideas from the analytic memos themselves periodically. Use as a reality check re progress
Reflect on and write about the final report for the study	Consider the organisation, structure and contents of the final thesis.

Appendix 18: Initial coding phase 1 qualitative data

I-Survey initial coding 30/03/2014

Code	Main theme	Code	Subcode	A	B	C	D	E	F	G	H	J
1	access to help	international student	overseas student ? Help available			1				1		
2a	doing ok	doing okay	getting / have always got good grades	5	9	6	2	12	2	10		
2b	doing ok	doing okay	not struggling		1	3						
3	doing ok	got into university	got into university					1				
4	doing ok	strategies in place	have coping strategies to deal with difficulties	1	2	1	1	1		2		
5	emotional aspects	separate room	separate room for exams would intimidate me							1		
6	emotional aspects	ashamed	ashamed						1			
7	emotional aspects	cheating	would feel i was cheating if given extra time							1		
8	emotional aspects	confidence to talk to someone	confidence to talk to someone		1					1		
9	emotional aspects	denial	prefer to ignore things / assume they are normal					3	1			
10	emotional aspects	dont want to be dyslexic	dont want to be dyslexic		1							
11	emotional aspects	embarrassed						4		1		
12	emotional aspects	guilt	guilt if get free equipment									
13	emotional aspects	harm	may do more harm than good	1								
14	emotional aspects	not sure want to know	not sure want to know								1	
15	emotional aspects	peace of mind	if tested would have peace of mind			1						
16	emotional aspects	people will think i am stupid						1				
17	emotional aspects	pride	would prevent me having pride in own work							1		
18	emotional aspects	excuse	I might use it as an excuse for not trying so hard			1				1		
19	emotional aspects	balance of risk	labelling vs low intelligence									
20	emotional aspects	self esteem	bad for self esteem							1		
21	Implications	discrimination	worried re potential discrimination	1								
22	Implications	employment	progression	2	1			2	1	1		
23	Implications	labelling	worried re labelling	1	3	2		1		2	1	
24	Implications	long term implications	would get used to preferential treatment					1		1		
25	Implications	stereotypical views	dyslexia = stupid		1							
26	Implications	stigma	worried re stigma	1	1	1						
27	Implications	disclosure	will have to declare it							2		
28	Implications	expect less of self	gives me an excuse not to push myself			1						
29	Implications	locus of control	difficulties			3			1			
30	Implications	might hinder studies	might hinder studies									
31	implications	others expect less	teachers may expect less of me			1						
32	influence others	advised against it	mother persuaded not to			1						
33	influence others	awaiting recommendation	seeing SLA next step recommendation									
34a	influence others	has been suggested by others	has been suggested		4	3			1	1		

I-Survey initial coding 30/03/2014

Code	Main theme	Code	Subcode	A	B	C	D	E	F	G	H	J
34b	influence others	problems identified by others	tutor / SLA spotted problems					1		1		
34c	influence others	suggested at school	queried at school but not tested		1			1				
35a	influence others	has not been suggested by others	not suggested		1	3	1			2		
35b	influence others	teacher / lecturer opinion	not picked up by school teachers / lecturers		4	2		4				
35c	influence others	teachers / lecturers opinion	parents / teachers would have noticed			1						
36	influence others	markers feedback	not picked up / commented on by markers		2							
37a	influence others	other peoples opinions	everyone says I probably don't have it			3		1				
37b	influence others	other peoples opinions	will look attention seeking / hypochondriac / paranoid	1	1	3						
37c	influence others	other peoples opinions	will think i am after more time					1				
38	influence others	peer being tested	considered going when other student diagnosed		1							
39	necessity	dont think I am / unlikely	dont think I am / unlikely / would know by now	1	9	5	2	7	2	7		
40a	necessity	on line quiz negative	on line quiz negative							1		
40b	necessity	not necessary	not necessary	4	5	5		1	1	2		
41	necessity	not having much impact	not having that much impact	2	4	2		9		5		
42	necessity	vague concern	vague concern / just in my head / curiosity	3	2			2		2	1	
43	necessity	not got around to it / not bothered	not got around to it / forgot	1	4	5	1	9		8		
44	necessity	hassle	too much hassle	1	2	1	1	1		1		
45	necessity	difference	not worth it / cannot see benefit		2	6	2	7	1	7		
46	necessity	dont need extra time / help	dont need extra time in exams		2	3	1	2		1		
47a	negative result	stupid / low IQ	if negative problems = low IQ			1				3		
47b	negative result	will feel silly if negative	will feel silly if negative	1						1		
47b	negative result	will look bad on me if negative	will look bad on me if negative		1							
48a	negative result	waste of time / money	waste of my money if negative			1						
48b	negative result	waste of time / money	waste of my time if negative	1				1		3		1
48c	negative result	waste of time / money	wasting others time if negative		2	1			2	3		
48d	negative result	waste of time / money	wasting resources if negative		2							
49	other	test booked	test booked		1	1						
50	other	dyspraxia	have dyspraxia so may have dyslexia		1							
51	process / logistics	ease of access	ease of access	2								
52a	process / logistics	availability	current)		5		1	2		2		
52b	process / logistics	availability	not offered	2		1						
52c	process / logistics	availability	not previously available	1								
52d	process / logistics	referral	thought need to be referred		2							
53	process / logistics	lack of information	dont know where or how	4	15	11		20	4	8	1	

I-Survey initial coding 30/03/2014

Code	Main theme	Code	Subcode	A	B	C	D	E	F	G	H	J
54	process / logistics	cost	cost	3	12	8	3	12		9		
55	process / logistics	time	time	3	9	3		7	1	5	1	
56	process / logistics	transport	no transport to get to Soton		1							
57a	symptoms	comparison with expected issues	no problems reading / spelling etc	1	3	1	2	1				
57b	symptoms	not bad enough	not bad enough compared with others									
58	symptoms	comparison with others	noticed worse than others in potential areas			1		1		1		
59	symptoms	comparison with others	symptoms not as bad as others with dyslexia		1	2	1	1		1		
60	symptoms	exhibiting potential stmptoms	exhibiting symptoms students has linked with dyslexia	1	8	6	2	11	1	9		
61	symptoms	normal symptoms	everyone has an element of dyslexia		1							
62	symptoms	occassional symptoms	only occassional symptoms		1			2	1	1		
63a	symptoms	problems attributed to other reasons	assumed due to gaps from school days		1							
63b	symptoms	problems attributed to other reasons	symptoms due to something else eg tiredness	2	5	3		2				
64	recent thought	recent thought	recent thought		4	1	1	2				
64b	undecided	thinking about it	seen by enablin ? Dyslexic - seeing how I get on		1							
64c	undecided	thinking about it	still thinking about it / dont know whether to		1				1	3	1	
65	views re dyslexia	dont believe it exists	numbers dyslexia (was suggested by lecturer)							1		
66	views re dyslexia	extra time for exams / resources unfair	unfair				1	1		1		
67	views re dyslexia	no cure	cannot be solved only helped so no point							1		
68	views re dyslexia	other	system of diagnosis not very good		1							
69	views re dyslexia	people wont take it seriously	people claim dyslexia without test			1						
70	genetic	genetic link	sibling / parent / child has dyslexia		3	1	1	1	1	1		
71		struggle on	struggle on		1							
72		what it is				2		3	1	3		
73		fairly sure i am				1	1	4	1	1		
74		would benefit from extra time					1			1		
75		always wanted to be tested						2		1		
76		in case i wasnt								1		
77		was offered so thought about it								1		
78		too late now						1				
79		will look at it in the future						1				
				46	147	110	25	148			6	1

Appendix 19: Frequencies of response for each sub theme

Main theme		Sub theme	Survey data	Interview data	
				Gp A	Gp B
Knowing	Necessity	No point	71	2	3
		No benefit	24	0	3
		Not a priority	59	2	1
		Doing okay	58	3	5
		Tipping point	0	5	0
	Understanding	What is dyslexia?	8	5	2
		Comparison with expected symptoms	47	1	4
		Other reasons	12	2	5
		Comparison with others	9	4	3
		Genetic link	8	2	3
		Showing symptoms	46	3	2
	Views	Views re dyslexia	7	1	2
Feeling	Benefits	Perceived benefits	2	5	0
	Emotional	Threats to personal integrity	24	5	4
		Other emotions	0	4	2
		Labelling	14	2	1
	Extrinsic risks	Employment	8	4	1
		Other people's opinions	5	4	3
Practical issues		Time	43	1	2
		Cost	48	1	3
	Information	Where to go	23	0	1
		How to organise test	44	0	1
		Availability	24	1	2
		Assessment processes	0	5	4

Main theme		Sub theme	Survey data	Interview data	
				Gp A	Gp B
Influence of others	Positive	Positive influence of others – Prompted by others	13	5	4
		Positive influence of others – Supportive staff	0	4	2
	Negative	Negative influence of others – Not picked up on by others	18	0	1
		Negative influence of others - Discouraged	3	0	1

Glossary of Terms

Phonological processing: is the ability to see or hear a word, break it down into discrete sounds, and then associate each sound with the letter(s) that make up the word.

Metacognition: involves knowing about how you learn best and when to use particular strategies.

Working memory: is the area of the brain where information is held temporarily whilst it is processed. People with dyslexia often find that their working memory becomes overloaded, particularly in the presence of distracting stimuli.

Automaticity: is the ability to do things without consciously thinking about it. It becomes an automatic response, pattern or habit and is usually the result of learning, repetition, and practice.

Pseudowords: are fake words, comprised of a string of letters. They resemble real words but do not actually exist.

Rapid automatized naming: is a task that measures how quickly individuals can name aloud objects, pictures, colours, or symbols. It is a strong predictor of later ability to read.

Phoneme: the smallest unit of sound.

Grapheme: the smallest unit of a writing system of any given language

Orthography: largely concerned with matters of spelling, and in particular the relationship between phonemes and graphemes in a language.

Orthographic processing: using the visual system to form, store, and recall words.

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