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The perceptions of how dyslexia impacts on nursing and midwifery students and the coping strategies they develop/use to manage difficulties associated with dyslexia in clinical practice; an embedded case study

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Doctor of Philosophy
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Terminology

Terminology related to disability:

Disability, as a topic, is emotive and it has been suggested that it is more respectful to use a 'people first' language (which puts the person before the disability) when referring to language pertaining to disability (Burns, 2016a; Snow 2006- 2016; The Arc, 2016, p.1). However, Levis (2012), Burns (2016) and Disability Media Matters (DMM, 2016) suggest that certain groups of people with disabilities such as autism, deafness and blindness, and individuals such as Sinclair (1999) and Ladau (2015) prefer 'identity first' language. Others find the use of 'people first' language offensive as it suggests 'the disability can be separated from the person and that it is something bad' (Burns, 2016, p.2). There is however a lack of evidence for or against the use of 'people first' language and the related literature seems to be anecdotal. The suggestions to use 'people first' language also appear to have stemmed from countries such as the USA and Australia. However, terms such as disabled, autistic, dyslexic, diabetic, are used within the medical fields within the UK and the rest of the world (DDM, 2016). In the view of the researcher, this seems to be changing since the World Health Organisation appears to use 'people first' and 'disability first' language interchangeably (WHO, 2011).

In line with the school within which one is undertaking the PhD recommendation, however, 'people first' language such as students, individuals, or people with disabilities is used in this thesis. There are occasions, however, when the words non-disabled, or disabled are used some of which are direct quotes and their use is not meant to be derogatory in any way. The terms such as students, staff or individuals with dyslexia are also used in some aspects of the thesis. However, the tape-recorded interviews were transcribed verbatim and the students who participated in this study have referred to themselves as 'dyslexics' rather than individuals with dyslexia. This is reflected in their statements, some of which are quoted during the presentation and/or discussion of the findings. There are also rare occasions when the words dyslexic or non-dyslexic are used for brevity.

Use of the terms student nurse or midwife; nursing and/or midwifery student:

The Nursing and Midwifery Council refers to individuals on a training and education programme to become a nurse or a midwife, either as a 'student nurse or midwife' respectively (2016, p.7), a 'nursing' and/or a 'midwifery student' (NMC, 2016, Standard 18, p.9; NMC, 2015, p.7). In this thesis, therefore, the terms 'nursing and midwifery students' (NMC, 2014 p.9), and the term 'student nurse' (NMC, 2016, p.7) or student midwife are used interchangeably as they have the same meaning.



ABSTRACT

The aims of this research were to explore the perceptions of the impact of dyslexia on nursing and midwifery students in practice, and of the coping strategies they develop and/or use to help them cope. To achieve the above aims, the following questions were set and addressed:

1. What is the perceived impact of dyslexia on the nursing and midwifery student in clinical practice?
2. How are any difficulties associated with dyslexia managed by the nursing or midwifery student?
- 3i What strategies can help and support nursing and midwifery students with dyslexia?
- 3ii What are students' and mentors' perceptions of the poster guidelines (developed following a previous study), which are designed to help and support nursing and midwifery students with dyslexia in clinical practice?

A qualitative study underpinned by a constructivist, interpretive ontological perspective was undertaken, based on a grounded theory case study approach. After seeking and gaining research ethics approval and informed written consent from potential participants, a purposive sample of 12 nursing and midwifery students with dyslexia, and 22 mentors was recruited and used for the study. Varied methods including tape recorded semi-structured interviews and content analysis of students' practice portfolios (n=8) and files (n=12) were used to collect data from the students. Evaluative comments from the mentors were also collected. The data were then analysed using Glasarian grounded theory method.

Findings suggest that dyslexia impacts on the student negatively as well as positively. There was expression of strong support with reference to demonstration of empathy and acceptance of students with dyslexia in both academic and practice settings, however, disclosure remained an issue for some students.

Apart from already available strategies, the students managed to develop and used simple and effective coping strategies in a non-stressful environment. In a busy environment however, they became stressed and frustrated with cascading effects. Many of the strategies used including the poster guidelines were identified as very useful and or helpful and suggestions made by both students and mentors led to the development of a tool kit to be use used interactively by the students and their mentors in practice.



CHAPTER 1

BACKGROUND AND RATIONALE FOR THE STUDY

1.0 Introduction

The main aims of this research were to explore the perceptions of the possible impact of dyslexia on the nursing and midwifery students and the coping strategies they develop and/or use to help them overcome any associated difficulties when in clinical practice. Many factors, including the introduction of the Disability Discrimination Act of 1995 (superseded by the Equality Act, 2010), widening participation, and requirements by the Nursing and Midwifery Council, contributed to the background, rationale for and the development of the aims of this research. The nature of nursing and midwifery education and training, the possible impact of dyslexia on the nursing and midwifery students' practice, fitness to practise issues and the limited research on the chosen topic also contributed to the background and rationale for this study.

Working within a grounded theory methodology, however, the literature is not typically reviewed prior to the data collection process for a number of reasons. Glaser (2010), who is one of the pioneers of grounded theory, advised that a literature review prior to data collection and analysis based on Glasarian grounded theory, is unnecessary and that any literature review should be done after the study so that it can be integrated into the current literature of the field of study. A systematic review also tends to be narrowly focused on answering the research question and although it aims to eliminate bias, 'does not allow comprehensive coverage' (Collins and Fauser, 2005, p.103). The literature review for this first chapter is therefore more of a general overview on the background and rationale for the chosen topic for the study, aspects of which are compared with current literature on the field studied where appropriate, in the analysis and/or discussion of the findings (Glaser, 2010). In order to give a comprehensive coverage on a wide range of issues related to the chosen topic of study, the review of the literature is given in a narrative format.

This is followed by discussion of the chosen research methodology and methods and rationale for same, in Chapter two, presentation of the findings in Chapters three, four and five, the discussion of the findings in Chapter six, the conclusions and recommendations in Chapter seven. A copy of the toolkit for supporting students with dyslexia, which was developed as a result of this study, which is to be used interactively between the students with dyslexia and their mentors and other staff is then presented. This is followed by a brief reflection on the research process.



1.1 The Equality Act (2010) and widening participation

Shepherd (2002, p30) argued that 'people with dyslexia are capable of' working as nurses. However, Illingworth (2005) suggested that dyslexia might be a hindering factor for enrolling on to a nursing course, successful completion and/or career, although Shepherd's argument and Illingworth's suggestion were both anecdotal. Prior to the introduction of the Disability Discrimination Act (DDA-1995), which has now been superseded by the Equality Act (2010), the only literature available on dyslexia in the nursing field were by Shellenbarger (1993), Green (1994), Sheehan and Nganasurian (1994) and are now dated. Moreover, their papers were anecdotal, despite their expressed concern about apparent lack of awareness and understanding of the needs of students with dyslexia and the lack of support by lecturers.

The main aim of the DDA of 1995, which was reviewed (DDA, 1995- Amendment 2006; Equality Act, 2010- Revised Aug 2012; The Equality Act 2010a, 2010b) and supported by other government initiatives, was to promote equality (DOH, 2000; 2001; DOH, 2002; DfES, 2002; Disability Right Commission -DRC, 2006; 2007; Equality and Human Rights Commission-EHRC 2008; 2008a; 2012; Equality Challenge Unit, 2010). This was in line with legislation from other countries, including the American with Disabilities Acts (ADA, 1990-Amendment Acts of 2008), the United States Equal Employment Opportunity Commission (EEOC, 2005b), the Australian Disability Discrimination Act of 1992 (DDA, 1992- amended 2014; 2016; Heubeck and Latimer, 2002). It was also in line with those of member states of the European Union Disability and non-discrimination laws (Disability High Level Group, 2007). The Equality Act (2010, Revised August 2012) also required programme providers to apply appropriate local policies for the selection and recruitment of students and employees with disabilities (NMC, 2006; 2008). This may have contributed to an increase in the number of people with disabilities who accessed and/or enrolled on to Higher Education courses in the United Kingdom (UK) (Figure 1a, p.12; Table 1a, p.13). The Nursing and Midwifery Council also required evidence of how students with disabilities would be supported in academic as well as practice settings. However, findings from a comparative study (McCandless, Sanderson-Mann and Wharrad, 2006) suggested that not every student wanted to be supported.

Apart from the Equality Act (2010) there has been emphasis on widening participation in the UK (DOH 2000; The National Audit Office 2002; 2008, NHS, 2010), with a supported range of funding for students from under-represented backgrounds (Price and Gale, 2006; National Audit Office, 2008; Harrison, 2011). 'Widening participation' also aimed to provide equal opportunity to all, with particular reference to under-represented groups including those with disabilities, disadvantaged social and economic backgrounds, and those with



non-traditional qualifications to access and engage in higher education (DOH, 2000; National Audit Office (NAO), 2002; 2008; OFFA, 2010; NHS, 2010; Butcher *et al.*, 2012).

According to Butcher *et al.*, (2012), universities have played a major role in facilitating the widening participation agenda through widening access to higher education for under-represented groups. Now, there appears to be some debate about whether or not the term 'widening participation' is appropriate (Butcher *et al.*, 2012, p.51), as apart from access, there is also now emphasis on the measurement of success of the target group which institutions are finding difficult (The Higher Education Academy Funding Council for England-HEFCE, 2009; Department for Business, Innovation and Skills-DBIS, 2011). Emphasis has also now been placed on competitiveness which is linked to a 'better student experience' and which is, in turn, linked to funding (Department of Business, Innovation and Skills, 2011: p4; Office for Fair Access-OFFA, 2010). This highlights the importance of the provision of appropriate support for students in general, including those with dyslexia.

1.1.1 Access, Recruitment to Higher Education and Employment

Except in the 'most selective' universities (OFFA, 2010, p.17), evidence suggests that the facilitation of the widening participation agenda also meant an increase in the number of students from under-represented backgrounds who access and enrol on to higher education institutions (National Audit Office-NAO, 2002; 2008; Joseph Rowntree Foundation, 2007; Barnes, 2007; OFFA, 2010; Harrison, 2011; Mc Guckin, Shevlin, Bell and Devecchi, 2014a). In one UK university, for example, statistics showed a rise in the percentage of students, who disclosed any form of disability including dyslexia upon enrolment, from 2% in 2004 to 9% in 2005 and 2007 (UoN, 2011; Figure, 1a;). The figures from 2008 onwards imply a slightly downward trend (Figure 1a) howbeit they were still higher than those of 2004 in the School of Health (UoN, 2009; UoN, 2009a; 2011). Statistics also showed a rise in the percentage of students in the whole university from 4% in 2004 to 8% in 2010 which supports the trend shown for one school in the university (UoN, 2011). The figures shown in Figure 1a are raw and it is unclear whether or not the differences shown are statistically significant.

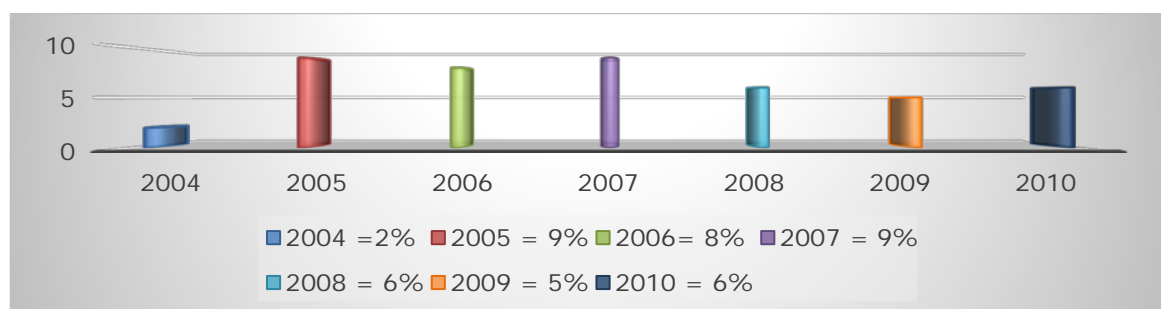


Figure 1a: shows % in enrolment of disclosed disability in one school in the university



It is, however, logical to assume that there might be a slight increase in the number of qualified nurses and midwives with dyslexia in line with national figures (Table 1a).

National figures also showed a steady increase in the uptake of students with disabilities although the number of all applicants into higher education institutions in the UK decreased by 6% in 2012 (Higher Education Statistics Agency-HESA, 2014). Additionally, there were some fluctuations in the figures (Universities and Colleges Admissions Service-UCAS, 2015, Table 1a). National Audit Office (2007) statistics also suggest that over half of those who declare disability have dyslexia.

Table 1a Applicants to HE by disability – by deadline before June – UK (UCAS, 2015)

Disability indicator	2010	2011	2012	2013	2014	2015
Declared disability	36,980 (6.6%)	39,180 (6.9%)	38,055 (7.4%)	41,925 (7.9%)	47,055 (8.6%)	51,640 (9.3%)
No disability declared	522,265	524,835	475,825	485,715	497,460	501,875
Total	559,240	564,015	513,880	527,635	544,515	553,515

Increase in the uptake of students with disabilities is also reflected in international figures. Ryan (2007), for example, reported an increase in uptake from 2% in 1996 to 3.6% in 2003 in the number of people who registered as having a disability in Australian universities. The Australian government also reported an 88% increase in the number of university students who registered as having a learning disability between 1996 and 2003. This might have been due to the enforcement of the Disability Discrimination Act of 1992 in Australia (DDA, 1992, as amended 2014; 2016; Ryan, 2007). According to Kerr, (2016), however, the increase in the uptake could be attributed to the non-charging policy they adopted for people with disabilities.

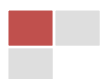
Other initiatives in the UK may also have contributed to the increase in the number of people from different backgrounds and individuals with disabilities in to nursing and midwifery. Entry to midwifery education and training, for example, has been for degree level only since 2010 (NMC, 2009). The National Health Service (2010) introduced four educational models and an employment model within its widening participation workforce development strategy which meant an all-graduate entry into nursing as well. The idea of introducing new models which include foundation degrees was to help promote 'widening participation' for NHS support staff and for under-represented groups in higher education (NHS, 2010). An equality impact assessment, carried out by the Nursing and Midwifery Council for the move to degree level, suggests that 'disabled people are less likely to' attend higher education institutions, however, 'when they do, they are more likely to' undertake 'vocational courses' (NMC, 2008, Sec 4.2, p.11), with nursing as the most



popular choice for those identified with dyslexia (Dale and Aitken, 2007; White, 2007; Wray *et al.*, 2013). This was also true of the USA (Watson, 1995) and of Australia (Ryan, 2007). This suggests that the number of people with disabilities applying for and enrolling to undertake nursing or midwifery courses might be stable or continue to rise in Europe and in countries where initiatives are put into place to actively promote uptake of disabled students and/or help them develop employability skills. These have implications for practice and for employers in general, including nursing and midwifery fields as this could help achieve part of the aim of the enactment which is to significantly improve the chances of people with disabilities, in order to gain access into as well as maintain employment (The Equality Act, 2010).

The importance of social integration, therefore, cannot be over emphasised as it is seen as a critical factor for the successful transition from compulsory education into higher education (Yorke and Longden, 2008; Mc Guckin, Shevlin, Bell and Devecchi, 2014). According to Hagan (2014, p.6), however, even after gaining employment, an individual with a disability such as dyslexia tends to 'experience disciplinary and misconduct-led approaches for' issues related to their disability. Barnes and Mercer (2004, p.18) also argued that individuals with any form of disability are 'substantially more likely to be unemployed.' This was echoed by Bell and Heitmueller (2008) who suggested that the shift of adjustment cost from the employee to the employer and the possible expression of litigation may lower rather than improve employment rates. This may have come about following the Labour Force Survey (Office for National Statistics, 2002) report which showed that the rate for unemployment for people with disabilities was 9% as compared to 5% for those without. In their review of available literature, however, Bell and Heitmueller (2008) found that the post enactment employment rate for long-standing illnesses or conditions has increased, though a true picture is not being given because disclosure to employers by individuals seems to be selective (Madaus *et al.*, 2002; Morris and Turnbull, 2007; Hagan, 2014).

The high unemployment rate for people with disabilities as compared to that of those without disabilities seems to be a global issue. In the United States of America (USA), for instance, the American with Disabilities Acts (ADA) of 1990 was imposed more than two decades ago and was partly aimed at improving and protecting an individual's right for employment (EEOC, 2005a; 2005b). However, Basas (2015) argued that the unemployment rate for individuals with disabilities in the USA, remained higher than that of the non-disabled. The unemployment rate in the USA for example, was 15% for people with disabilities, compared to 8.7% for the non-disabled in 2011 (Basas, 2015). Similar problems in Europe seem to exist although some of the member states of the European Union have had anti-discriminatory acts that protect the rights of people with disabilities for



a while, of which the Equal Opportunity Acts of 2000 in Malta, and a law prohibiting discrimination in working life on grounds of disability (1999) in Sweden are examples (Waddington and Lawson, 2009).

The high unemployment rate for people with disabilities may have led to the EU Disability Plan (2004-2005; 2006-2007; Disability High Level Group, 2007) to promote activities that enhance lifelong learning to help enhance employability, adaptability, personal development and active citizenship, with the aim of improving the employment rate for them. This initiative led to some good practice by some of the EU member states. Between 2005 and 2009, Denmark, for example, set aside a budget to increase employment by 2000 jobs annually for people with disabilities (Disability High Level Group, 2007). Another example of good practice was the creation of incentives such as giving awards to the best enterprise for managing human resources based on criteria for ethnicity, ageing, disability and gender in Belgium (Disability High Level Group, 2007).

1.2 Nursing and midwifery education and training requirements

In the UK, the modernisation of nursing and midwifery roles by the NHS has also meant changes in the way nursing and midwifery education is organised (DOH, 2002; Wanless, 2002; NMC, 2006; DOH, 2008) with a shift from diploma to all graduate level nursing and midwifery (NMC, 2009; NHS, 2010). 'The success of maternity' care provision is also expected to be measured 'in terms of actual and perceived safety' (Jill Rogers Associates, 2010, p.7). It is, therefore, expected of nurses and midwives to consistently provide high quality of care.

However, the transition from compulsory education into higher education is stressful (Mc Guckin, Shevlin, Bell and Devecchi, 2014). The midwifery and nursing courses are also both demanding. In order to become registered as midwives and nurses, for example, midwifery and nursing students are required by the Nursing and Midwifery Council (NMC, 2009; NMC, 2010; 2015) to spend at least half of their 3 years education and training time in the academic sector and the other half in clinical placement areas. During these processes, the students are required to produce assignments and sit for examinations as part of their assessments to help achieve required standards and competencies (NMC, 2009; 2010; 2015), all of which require a lot of reading and writing and have implications for students with dyslexia due to the nature of the condition (Section 1.3; Appendix 1A).

1.2.1 The Nurse

The nurses' and the midwives' roles also require special knowledge, skills and attitudes in order to practise safely and competently. Nurses, for instance, are required by the Nursing and Midwifery Council (NMC, 2010; 2015c) to practise autonomously whilst providing best available evidence-based essential care to a very high standard, and complex care,



underpinned by knowledge of human anatomy and physiology, and how these are affected by illness, socio-economic, psychological, cultural and spiritual factors, as well as by ethical principles (NMC, 2008; 2009). These are underpinned by legal frameworks, professional values as well as excellent communication and interpersonal skills (NMC, 2010). Nurses must be able 'to lead, delegate, supervise and challenge other nurses and healthcare professionals' (NMC, 2010, p.4). Any decisions made by the nurse must involve some analytical processes, use of problem-solving approaches and be based on evidence.

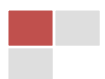
There are also competencies that need to be achieved prior to entry to the nursing register which are grouped under four major headings (domains), namely 'professional values', 'communication and interpersonal skills', 'nursing practice and decision-making', 'leadership management and team' (NMC, 2010, p.4; 2015c, p.11; Appendix 1B). Apart from the above, there are essential skills clusters that must be achieved by all nurses at different stages of their education and training (NMC 2010; 2015), all of which highlights the intensity of the nursing programme.

The achievement of all the above NMC (2015c) standards and competences requires the nursing student to be involved in the provision of care of patients or clients in hospital or community settings, on a one-to-one basis or with other healthcare workers and, on a typical day, involves carrying out certain tasks (Appendix 1B, Figure 1b, p.273), when the student is assessed by mentors in an ongoing manner. It also means a move from one practice placement to another over the three years training, all of which could prove challenging for individuals with dyslexia and stresses the importance of this study which aims to explore the perceived impact of dyslexia on the students' practice.

1.2.2 The midwife

Unlike the nurse, the midwife's practice encompasses giving care to women and their families during pre-natal, antenatal, labour and puerperium (NMC, 2009; 2015d). Shellenbarger (1993) argued that the life of a patient might be dependent on the nurse's ability to read and interpret instructions correctly especially when administering prescribed drugs. This is still true of today in both nursing and midwifery fields. Although the practice of a midwife also involves assessment, care planning, implementation and evaluation of care (Aldridge *et al.*, 2005; Appendix 1B, Figure 1b, p.273), the activities carried out by a midwife differ from those of a nurse. According to the Nursing and Midwifery Council (NMC, 2009; 2015d), article 42 of directives 2005/36/EU, for instance, the activities that are to be carried out by registered midwives include the diagnosing of pregnancies, provision of antenatal, labour and postnatal care of women and their newborn infants.

Activities applicable throughout antenatal, labour and postnatal period include carrying out



of any 'treatment prescribed by a doctor' and the maintenance of all necessary records whilst working within ethical and legal frameworks (NMC, 2009, p.66) and which has implications for individuals with dyslexia. As reflected in the definitions of dyslexia for example, it is logical to assume that the need to keep accurate records for all care provided could prove challenging to any individuals on the nursing and midwifery fields with specific learning difficulties such as dyslexia (Hudson, High and Otaiba 2007; Dymock, 2011; BDA, 2012). These activities are reflected in the following definition of a midwife and in the NMC standards and competences set, and in the task analysis for midwives (Appendix 1C). According to the NMC (2009, p.3; 2015d, p.4) the definition of 'a midwife' which has been adopted by the International Confederation of Midwives (ICM, 2011) and by the World Health Organisation (WHO) states that:

'A midwife is a person who, having been regularly admitted to a midwifery educational programme, duly recognised in the country in which it is located, has successfully completed the prescribed course of studies in midwifery and has acquired the requisite qualifications to be registered and/or legally licensed to practise midwifery' (NMC, 2009, p.3; 2015, p.4).

She is a 'recognised responsible and accountable professional who works in partnership with women to give the necessary support, care and advice during pregnancy, labour and the post-partum period' (NMC, 2009, p.3; Masterson, 2010, p.1; Jill Rogers Associates, 2010, p.12).

She also 'conducts births' on her own responsibility and gives care to 'the newborn and infant' (NMC, 2015, p.4; Masterson, 2010). As an 'autonomous practitioner and lead carer for normal childbirth' (NMC, 2015d, p.4), her role includes health counselling and education for the woman, the family and community, which encompass antenatal and 'preparation for parenthood education and may extend to women's health, sexual or reproductive health and childcare' (NMC, 2009, p.3). In the process of providing that care, a midwife may carry out preventive measures, promote normal childbirth, and detect any complications in the mother and baby, access medical and other specialist care (Jill Rogers Associates, 2010; NMC, 2015). This requires her to develop meaningful therapeutic relationships (Sheaff *et al.*, 2009) through continuity of care (Green, Renfrew and Curtis, 2000) to enable her to act as a bridge across services to facilitate integration of care (Thomas and While, 2007). Evidence does, however, suggest that continuity of carer is difficult to achieve (Masterson, 2010).

Certain competencies are also reflected under four main domains namely, 'effective midwifery practice; professional and ethical practice; developing the individual midwife and others and achieving quality care through evaluation and research' (NMC, 2009, p.21),



which together with relevant 'essential skills' (NMC, 2009, p.33-64), must be achieved by the student midwife in the process of her education and training to enable safe and effective practice without direct supervision at the point of registration as a midwife. These are regularly reviewed by the ICM with the aim of providing 'high quality care for women and their families' (Fullerton, Thompson and Severino, 2011, p.400).

In order to achieve the above stated competences and standards, a student midwife is required by the NMC (2009;2015d) to carry out certain activities during her education and training (Appendix, 1C), with the aim of equipping her to be responsible and accountable for her own actions at the point of registration (Fraser, 2000; Masterson, 2010). Past experience has also shown that like the nurse, she also has to carry out certain tasks (Appendix 1C, Tables 1a, 1b and 1c), whilst working in different clinical settings with the women and babies in her care, all of which are reflected in the above competences, standards and activities of a midwife (NMC, 2009). Her provision of care is underpinned by excellent interpersonal and communication skills (verbal and written), and requires team working, decision-making, organising skills, and the application of theory to practise, ethical and legal frameworks, as well as policies (NMC, 2009; NMC, 2012). This is to ensure safe and effective practice without direct supervision at the point of registration. As a practitioner in her own right, the midwife is required to practise autonomously, reflectively, confidently, competently and base her practice on best available evidence, at the point of registration (NMC, 2009; 2012; 2015b) and in any setting including the hospital, clinic, home, community or health units (NMC, 2009: 2015d). Moreover, her work involves a lot of reading and writing, all of which highlights the demanding nature of the midwifery course as well as the practice of a midwife and which could prove challenging for midwifery students with or without dyslexia; hence, the need for the provision of appropriate support, especially for those with dyslexia. This, in turn, require knowledge of how dyslexia might impact on the nursing and midwifery students' practice and the strategies she develops and/or uses and those she finds useful. Literature on the chosen topic in relation to the midwifery field is, however, almost non-existent, hence the need for this study.

1.3 Definition of dyslexia

Dyslexia has also been described as a long-term condition with associated long-term difficulties (Ingesson, 2007; Firth *et al.*, 2013), implying that dyslexia may affect aspects of the day-to-day activities of individuals. However, many of the available definitions of dyslexia tend to place emphasis on difficulty with reading only. According to Hudson, High and Otaiba (2007, p.1), for instance, the term dyslexia is a Greek word made of two syllables; the first syllable which is 'dys' means 'difficult' and the second syllable which is 'lexia' means 'words, reading or language'. Loftus (2009, p.3) also suggests that 'dyslexia comes from the Greek word dus' which means 'a difficulty', and 'lexis' which means single



word or speech and goes on to explain that 'at its simplest form, the word dyslexia means a difficulty with a language'. However, there does not seem to be any consensus about the origins of the term dyslexia (Appendix 1A, p.263).

How dyslexia is defined by the World Health Organisation is also unclear. Even so, it seems to be classified as a specific developmental disorder of scholastic skills under specific reading disorder section (WHO, ICD-10-2015, F81, R48). According to the International Dyslexia Association, however, 'dyslexia is characterised by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities' (IDA, 2015, p.1) due to a deficient phonological component of language that is often unexpected despite a person's cognitive abilities and the provision of appropriate classroom instruction. This may lead to difficulties in 'reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge' (IDA, 2015, p1). The IDA's definition above seems to describe the possible cause of it as well as explains how dyslexia may be recognised although it still places emphasis on difficulties related to reading.

There are also many other variations of the definitions of dyslexia, many of which seem to associate dyslexia mainly with reading difficulties, yet it is not clear how these definitions were arrived at (Appendix, 1A, p.263). However, the British Dyslexia Association's (BDA, 2012) definition of dyslexia seems to describe dyslexia in more detail when compared to other definitions above and with those discussed in Appendix 1A. The BDA's definition of dyslexia also seems to be based on research so their definition is discussed below.

In early 2011, the British Dyslexia Association (2012, p.1) defined the term dyslexia as 'a Specific Learning Difficulty' and went on to refer to Rose's report (2009) which relates the difficulty in learning to skills involved in accurate and fluent word reading and spelling. This seems to support Hudson, High and Otaiba (2007, p.1) idea that the term dyslexia mean 'difficulty with words'. Such difficulty appears to relate to reading, spelling and writing (Morris and Turnbull, 2006; Price and Gale 2006; White, 2007; Crouch, 2008; Child and Langford, 2011), to poor memory (White, 2007; Crouch, 2008; Child and Langford, 2011), and for some to speech (Crouch, 2008; Snowling and Hulme, 2014) due to difficulty in processing the word-sounds (Snowling and Hulme, 2014) as research findings suggested.

The British Dyslexia Association (BDA, 2012, p.1) has since then expanded on the above given definitions, in that, it now describes the term dyslexia as a 'Specific Learning Difficulty' or a hidden disability associated with difficulties related to the way in which information is processed, stored and retrieved, literacy, memory, organisation, and time perception (British Dyslexia Association-BDA, 2012). The BDA's latter definition seems to



be congruent with research findings (Price and Gale, 2006; Morris and Turnbull, 2006; Crouch, 2008). Price and Gale (2006), for example, reported that student nurses with dyslexia, who participated in their study, reported having difficulties with organising tasks. Others reported having short-term memory (Morris and Turnbull, 2006; Crouch, 2008). It is worth noting, however, that apart from the use of small samples, the studies conducted by Morris and Turnbull (2006), and by Crouch (2008), were not comparative studies and the findings were based on what the participants perceived as difficulties encountered due to dyslexia. Nonetheless, the BDA's latter definition is more comprehensive as it implies that there is more to dyslexia than difficulties related to literacy, hence adopted as the main definition for this study.

1.3.1 Definition of dyslexia as a disability

Dyslexia has also been described as a disability or as a specific learning disability in the UK, which is synonymous with the term learning disability in the USA and in Canada (Gerber and Price, 2003; Gerber, Batalo and Achola, 2012; Pollak, 2012). The UK Equality Act (2010, p.4), for instance, defined an individual with a disability as 'someone who has a physical or mental impairment, which has effect on his or her ability to carry out normal day-to-day activities. That effect must be 'substantial, long-term and adverse' (Equality Act, 2010, p.4). Various disabilities including unseen disabilities such as mental health difficulties and learning difficulties including dyslexia were included in the legal definition of disability. As this definition implies, dyslexia might impact on the students' day-to-day activities including their practice in the clinical areas, which has implications for practice. Apart from the BDA's definition, therefore, the definition of dyslexia as a disability is also adopted for this study.

Interestingly, in an in-depth study of nine students with dyslexia, four placement officers and four employers, and almost all the students with dyslexia did not see dyslexia as a disability on a personal level (Blankfield, 2001). This might be due to the invisible nature of dyslexia (Burns and Bell, 2010; De Beer *et al.*, 2014). Apart from individuals with dyslexia, the employers in Blankfield's study also did not regard dyslexia as a disability at individual level, although corporately, they accepted the definition of dyslexia as a disability (Blankfield, 2001) in line with the Equality Act definition (2010). According to Blankfield, however, this seems to have an effect on how application forms are worded and they do not seem to encourage disclosure.

It has been suggested that the definition of dyslexia as a disability by Equality Act of 2010 implies that, dyslexia is a problem (Morris, 2011). Hence individuals with impairment are expected to take responsibilities for their disability as it is based on the medical model of disability (Barnes and Mercer, 2006; Morris, 2011). According to Pavey, Meehan and



Waugh (2010), accepting the definition of dyslexia as a disability and disclosing it upon enrolling on to a course in higher education, means access to Disabled Students Allowance for UK students although this requires psychological and a formal needs assessment. However, Pollak (2012, p.66) found 'a strong link between self-esteem and the adoption of medical model of dyslexia'. Having to apply for 'Disabled Students' Allowance' upon disclosure in the UK, for example, can result in discomfort for some students so Pollak (2012, p.66) advised that such terminology should be dealt with sensitively.

People with dyslexia are also said to be creative and innovative and have very good problem-solving and empathic skills, so there is a danger that such skills might be ignored since disability implies inability to carry out tasks (McLoughlin and Leather, 2013), which implies the need for support. This supports the statement of Dearnley, Elliot, Hargreaves *et al.*, (2010, p.6) that 'disability is' usually seen as 'synonymous with illness' in the healthcare professions and which leads to questions about safety and other unfounded concerns.

The description of dyslexia as a disability, also requires programme providers to provide 'reasonable adjustments' to students with dyslexia or other forms of disabilities in the UK, in line with the Equality Act (2010), in order to help meet their needs (DOH, 2001; DfES, 2002; DRC, 2006; 2007; NMC, 2008; 2010a; 2010b; EHRC, 2008; 2008a; 2012; Equality Challenge Unit, 2010; UoN, 2011; DBIS, 2011; 2012). This compares with the 1990 American with Disability Act and the Equal Employment Opportunity Act of the US government (EEOC, 2005), which also require employers and organisations to provide 'reasonable accommodations' for individuals with disabilities, all of which are dependent on the declaration of any disabilities by individuals. This reflects the social model of disability which suggests that, although individuals have existing impairments, it is the social restrictions placed on them by society that cause their disablement (Riddick, 2001; Macdonald, 2009). In contrast to the medical model in which individuals with impairments are expected to take responsibility for their disability, the social model implies that society and institutions must ensure that 'users and their organisations play a decision-making role in any assessment' and action planning processes (Roulstone, 2004, p.20). The description of dyslexia as a disability, therefore, has implications for nursing and midwifery education programme providers, as well as for employers in the United Kingdom.

1.4 Aetiology: Phonological deficit theory and developmental dyslexia

Until the late nineties, there were inconclusive research findings on the origins of dyslexia and different theories about its aetiology seem to exist, which reflect dyslexia as a medical condition. In this section, the phonological deficit theory is discussed. This is followed by brief discussions on genetic and age factors and on the visual deficit theory (Sections

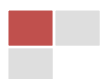


1.4.1-1.4.2). According to Snowling (2000), Snowling and Hulme (2014), Vellutino and Fletcher (2014), The New Zealand Ministry of Education (2007) and Nicholson *et al.*, (2010), the phonological deficit theory now seems to be the most widely developed and accepted and is by far the most researched. Models of cognitive psychology and frameworks for reading, such as by Goswami and Bryant (1990), Nation and Snowling (1998), Frith (1999), Snowling (2000), Goswami (2000), and by Snowling and Hulme (2014) in the UK, also asserted the importance of phonology in learning to read. This notion is supported by findings of numerous literature reviews (Vellutino *et al.*, 2004; Shaywitz, Morris and Shaywitz, 2008; Caylak, 2010).

Lavenda and Schultz (2011) from the USA explained in their paper that speech sounds are known as phones. Phones characteristic of any particular accent tend to follow a particular pattern and are produced by the speech organ that belongs only to humans (Lavenda and Schultz, 2011). The English alphabet is said to be based on the idea that 'speech can be represented by small units' (phonemes) which are 'represented by letters' (Frith, 1999, p.202) and it was believed that a well-functioning phonological system helps to facilitate speech, however, any weakness in the phonological system has adverse effects on speech (Snowling and Nation, 1997; Snowling, 2000; Vellutino *et al.*, 2004; Shaywitz, Morris and Shaywitz, 2008; Pennington, 2009). A weakness in the phonological system, for example, may mean 'a decreased ability to use speech codes to represent information in the form of words and word parts', (Vellutino and Fletcher, 2014; p.367). This belief was supported by Galaburda *et al.*'s post-mortem neuro-anatomical studies that showed some abnormality in the peri and extra-sylvian areas of the left hemisphere of the brains of individuals with dyslexia in the mid-80s in the USA (2006). The abnormalities were to do with cell migration in certain areas of the cortex and were associated with greater symmetry of the planum temporal in both hemispheres of the brains of those with dyslexia, when compared to the brains of those without (Galaburda *et al.*, 2006), which suggested that dyslexia has developmental origins. This is congruent with Evans *et al.*'s (2013, p.1) statement that developmental dyslexia is 'characterised by unexpected reading' problems. Moreover, it is 'associated with anomalous brain anatomy and function' (Evans *et al.*, 2013).

Structural differences in the brain have also been found. The brains of individuals with dyslexia, for example, have also been found to have less gray matter in the left parieto-temporal area than the brains of those without (Booth and Burman, 2001). According to Hudson, High and Otaiba (2007), this could explain the problems associated with phonological awareness as studies by Shaywitz *et al.*, (2004) also suggested that the parieto-temporal area within the left hemisphere is important for skilled reading.

Deutsch *et al.* (2005) also found less white matter in the parieto-temporal lobe of people



with dyslexia than in the brains of individuals without dyslexia and that more white matter correlated with increased reading skill. The findings by Booth and Burman (2001), and by Deutsch *et al.*, (2005), suggested that both gray and white matter in the brain have a significant role in phonological processes. Hudson, High and Otaiba (2007) also suggest that the ability of the different parts of the brain to communicate with each other could be diminished where there is less white matter in the brain and which may contribute to the difficulties associated with reading.

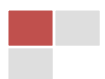
Lee *et al.* (2007), however, found in a study of monolinguals that the density of gray matter may correspond with the number of words learnt. The findings of Lee *et al.*, (2007) appear to suggest two possible theories; that is, either that gray matter increases in density as a result of learning or that more gray matter facilitates learning (Richardson, 2008). Since brain structures have been shown to correlate with learning and ability, Richardson (2008) argued that having less gray matter, as shown by some researchers, could simply be a consequence rather than a cause of the disorder (and in this case dyslexia).

1.4i Functional differences in the brain:

Functional magnetic resonance imaging is a non-invasive method used to pinpoint blood flow whilst the research participant performs given tasks to allow the measuring of physiological signs of the functioning brain rather than the activity of the brain at rest (Hudson, High and Otaiba 2007). Studies using the above method also showed less activation in the posterior temporal and tempo-parietal regions (Paulesu *et al.*, 2001; Brambati *et al.*, 2004; 2006; Silani *et al.*, 2005, Hyde *et al.*, 2006; Hyde *et al.*, 2007; Hoeft *et al.*, 2007; Chetelat *et al.*, 2007), when making semantic decisions (Shaywitz *et al.*, 2003) and bilaterally in the occipito-temporal regions of individuals with dyslexia and which correlated with reading skill (Shaywitz *et al.*, 2002; Richardson *et al.*, 2010).

1.4ii Semantic and syntactic deficit and developmental spelling

Although most of the evidence suggested that reading difficulties, including dyslexia in children, were caused by phonological deficit, deficits in semantic and syntactic skills may also have played a role (Dickinson and Tabors, 2001; Snowling and Hulme, 2014; Vellutino and Fletcher, 2014). Nevertheless, further research is required in this area. Romani, Olson and Di Betta (2014, p.441) also stated that 'developmental spelling problems are usually associated with reading problems, even if spelling problems are sometimes the only remaining indication of dyslexia in adulthood,' hence, the term developmental dyslexia seem to be used to cover both spelling, reading and writing problems. This was reflected in Tunmer and Greaney's (2010) statement that dyslexia is caused by an impairment in the phonological processes, namely decoding, spelling and phonological awareness' which are needed for learning to read and write, implying that there is more to dyslexia than just a



reading problem.

1.4.1 Genetic and age factors

Dyslexia has also been described as a 'familial and a moderately inheritable' disorder (Peterson and Pennington, 2012: p.2003). A higher rate of reading difficulties was found in both males and females that have an extra X chromosome, (Pennington, Bender, Puck *et al.*, 1982; Pennington and Olson, 2014) which implied genetic involvement in the aetiology of dyslexia. Replicated linkage studies, for instance, linked dyslexia to nine risk loci (DYX1 to DYX9) (Fisher and Defries, 2002; Peterson and Pennington, 2012; Snowling and Hulme, 2014). Another linkage study of dyslexia showed 'a linkage to centromeric marker on chromosome 15' (Smith *et al.*, 1983; Kere, 2011; Pennington and Olson, 2014: p.455). Findings from later studies also suggested that a gene (QTL on short arm of chromosome 6) was probably responsible for dyslexia since it is a dominant gene (Cardon *et al.*, 1994; Gayan *et al.*, 1999; Grigorenko *et al.*, 2000; Lyon *et al.*, 2003; Ramus *et al.*, 2003; Snowling and Hulme, 2014). The discovery of a gene that might directly or indirectly influence reading may be helpful in early diagnosis of dyslexia and may enhance researchers' understanding of cognitive skills (Plomin, 2000). Researchers in other studies (Field and Kaplan, 1998; Petryshen *et al.*, 2000) were, however, unable to find such a link which means the findings were not conclusive. Clearly, more studies are needed in this field.

Richardson (2008) also found that a reduction in density of gray matter occurs over life span and this suggests that dyslexia could be age induced, however, additional research is required to support this.

1.4.2 Visual deficit theory

Prior to the phonological deficit theory, however, was the visual deficit theory which has its origins as far back as 'the early 20th century which involved research that focused on the idea that dyslexia was caused by a visual deficit which involved reading backwards or upside-down.' (The New Zealand Ministry of Education 2007, p.10). This could explain why apart from the variations of definitions of the word dyslexia over the years, some misunderstanding of the word was also often expressed with some suggestions that the term dyslexia was a problem related to letter or word reversals or of words, letters or sentences dancing around on a page (Rayner *et al.*, 2001; Hudson, High and Otaiba 2007). That description of dyslexia seems to be based on the theory that it was caused by a visual deficit. However, this was disputed by Hudson, High and Otaiba (2007), who also argued that reading and writing letters and/or words backwards are common in the early stages of learning in both average children and those with dyslexia and that such trait may or may not necessarily be indicative of dyslexia.



Although in the 1970s there was a shift from the visual deficit idea to phonological deficit in relation to dyslexia (New Zealand Ministries of Education, 2007), resurgence on the visual deficit theory seemed to have occurred. Ungerleider and Mishkin (1982), for example, reported that some people with dyslexia had impaired visual processing. Another study that involved imaging of the brain also reported that some individuals with dyslexia had abnormal activation in part of the magnocellular system and that their judging of relative velocities of visual stimuli was impaired (Eden *et al.*, 1996). They also reported that those with dyslexia had difficulty in non-word reading tasks, implying some phonological processing deficit, even though the relationship between visual and phonological deficits are unclear and the sample studied was small. Studies by Fletcher *et al.*, (1999), however, suggested that visual deficit probably plays a very small part in the exhibition of dyslexia. Since research findings on the visual deficit theory in relation to dyslexia were not conclusive, it was described as 'a standard lay theory' by Rayner *et al.*, (2001, p.44).

Findings from latter studies such as Hansen *et al.*, (2001), Pammer and Wheatley (2001) also suggest that some people with dyslexia have abnormal visual evoked potentials for stimuli in aspects of the magnocellular system. However, Skottun (2001) disputed whether the magnocellular system was uniquely tapped by some of the stimuli used. Findings by Hayduk, Bruck and Cavanagh (1996), Chiappe *et al.*, (2002), Amitay *et al.*, (2002), and Ramus *et al.*, (2003) suggested that although 29% of people with dyslexia have some visual problems, the findings were not consistent with visual deficit specific to the magnocellular system. It could be said then that some people with dyslexia appear to have visual difficulties, yet the underlying biological cause for the visual disorders is unclear. Nonetheless, the visual deficit theory seems to have led some to automatically issue out coloured overlays to individuals with dyslexia, though such intervention has been shown to be unhelpful in improving word recognition difficulties in children with dyslexia (Henderson *et al.*, 2012; Creavin *et al.*, 2015). The use of coloured overlays has, however, been shown to be beneficial to individuals with dyslexia and who had a visual impairment (Evans and Joseph, 2002), so more research is needed in this field.

It is evident from the above discussion that there seems to be some agreement that phonological deficit might be the underlying cause of dyslexia and there is evidence that there might be a familial disorder. However, some authors continue to promote the visual deficit theory as a contributory factor in the aetiology of dyslexia.

1.5 Behavioural manifestations, screening and identification

One of the main characteristics of dyslexia is that of 'difficulty to map alphabetic symbols to sound and acquiring facility in phonological decoding' (Vellutino and Fletcher, 2014; p.364). The 'difficulties in accurate representation of sound patterns for words' in the language of



individuals with dyslexia is said to occur due to their inability to store in detail and in a specific manner required for learning letter sound relations (Thomson and Goswami, 2009, p.453). A weakness in phonological coding might also be responsible for some of the problems associated with learning to read, with particular reference to the storing and remembering sounds (phonological memory) and with retrieval of sounds and words from long-term memory (rapid automatic naming) all of which may also contribute to difficulty in spelling (Snowling, 2000; McLoughlin and Leather, 2013; Vellutino and Fletcher, 2014).

Vellutino and Fletcher (2014, p.364) also advocated that poor orthographic awareness also tends to be present in individuals with poor phonological awareness, the former of which is to do with 'sensitivity in how the letters in printed words are organised.' This, coupled with poor short-term memory (the ability to temporarily maintain phonological presentations active) (Galadurba, 2006, p.1213), and deficiencies in lexical skills (Vellutino and Fletcher, 2014) are said to be suggestive of phonological deficit by Galadurba (2006).

Other listed observable behaviours included forgetfulness, poor organising, numeracy and spoken language skills, lack of confidence and low self-esteem (McLoughlin and Leather, 2013). Longitudinal studies also showed that observable symptoms of dyslexia, for example, poor phonological awareness, and lexical deficits such as word identification and spelling in children during early years of learning to read, remained observable in the same individuals right into adulthood (Bruck, 1990; Elbro Neilsen and Petersen, 1994; Shaywitz *et al.*, 1999; Hatcher, Snowling and Griffith, 2002; Vellutino and Fletcher, 2014). Such symptoms might impact on the practice of the nursing and midwifery students with dyslexia.

Early identification of dyslexia and research-based knowledge of how dyslexia might impact on the students' practice is of vital importance to allow provision of appropriate support. However, as many as 40% of adults with dyslexia slipped through previous nets and were not identified as having dyslexia until they started higher education, despite the introduction of the 'dyslexia adult screening test' (DAST) developed by Fawcett and Nicholson (1999) and efforts made by the Dyslexia Institute of 1972 and by the British Dyslexia Association to raise awareness of the condition in the mainstream education system (McLoughlin and Leather, 2013).

Identification of dyslexia involves the collection of information of a person's background to help identify the above named behavioural characteristics of dyslexia, using the Adult Dyslexia Screening Tests (DAST-Singleton and Horne, 2009) or the Scholastic Abilities Test for Adults of the USA (Bryant, Patton and Dunn, 1991). Such screening tests might be carried out by teachers (McLoughlin and Leather, 2013). Harrison and Nichols (2005) found that the DAST tended to produce many false negatives and positives which highlights the importance of appropriate training for highly skilled teachers and individuals in the use of



such tests. Formal diagnosis of dyslexia does, however, require psychological tests that are usually carried out by a psychologist and which are followed by clinical needs assessment to allow appropriate support to be given to the individual going on to placement (Nichols, 2012; Howlin, Halligan, and O'Toole, 2014). This is important due to the high incidence of dyslexia as discussed below.

1.6 Prevalence of dyslexia

According to the British Dyslexia Association (2003; 2012), the prevalence of dyslexia is about 10% in the UK general population. On the other hand, the Dyslexia Research Institute (2010) estimates it to be about 10%-15% in the United States (US) population. However, these might not be the true rates as research findings showed that many adults were identified as having dyslexia only after commencing studies in higher education institutions (Bell, 2010; McLoughlin and Leather, 2013). Sanderson-Man and McCandless (2006) also reported that about 3-10% of the nursing population had dyslexia, however, such variation might have been affected by the number of students who chose to disclose their disability. A report from Ryan (2007) following a study of students with learning difficulties in Australia also seems to support the notion that the true incidence of individuals with learning difficulties might have been affected due to low level of disclosure. The prevalence of dyslexia is said to be higher in males than in females (Vogel and Holt, 2003; Evans *et al.*, 2013). This might not be reflected in the number of individuals with dyslexia in nursing and midwifery fields of work, since uptake in both fields seems to be predominantly female.

Findings from an international study also suggested that the prevalence of self-reported specific learning disabilities and self-reported specific learning difficulties such as dyslexia varied from country to country (Vogel and Holt, 2003). It was, for example, about 3.7% in Canada, 5.3% in Great Britain, 3.1% in Ireland, 7.7% in New Zealand, 4% in Northern Ireland and 3.5% in the USA in 2003 (Vogel and Holt, 2003). However, it is not known how many of the self-reported LD were false positives and how many of those who did not self-report were false negatives. Irrespective of the differences in the prevalence of dyslexia between different countries, the invisibility of dyslexia, coupled with lack of disclosure, might perhaps contribute to the figures shown, all of which have implications for nursing and midwifery education and practice.

1.7 Possible impact of dyslexia: difficulty in completing reports

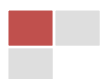
It was suggested in the definition and aetiology of dyslexia sections that, dyslexia was likely to impact on the nursing and midwifery students' learning in different ways, including their ability to write effectively both academically and in practice. Some qualitative research reports, for instance, suggested that student nurses with dyslexia have difficulty in



completing assessment forms and care plans (Illingworth, 2005; Morris and Turnbull, 2006; Price and Gale, 2006; Dale and Aiken, 2007; White, 2007; Crouch, 2008; Cowen, 2010; Tee *et al.*, 2010; Sanderson-Mann, Wharrad and McCandless, 2012). No specific errors were reported in relation to the above studies. In contrast to misconceptions about safety reflected in Shellenbarger's (1993) anecdotal account on nurses with dyslexia, findings from Morris and Turnbull (2006) and from those of Crouch's (2008) study suggested that the heightened awareness of the student nurses of their disabilities, led them to develop compensatory strategies to try and overcome any difficulties associated with dyslexia. This was echoed by findings from a comparative study by Child and Langford (2011) of six nurses with dyslexia and of six without, although the sample used was small. The samples used by Morris and Turnbull (2006), Price and Gale (2006), White (2007), Crouch (2008), Tee *et al.*, (2010), and by Ridley (2011), were also small and each of them was undertaken within small geographical areas. Illingworth's (2005) study also related to qualified nurses and healthcare assistants with dyslexia. Apart from that, the study by Tee *et al.*, (2010) was related to students with different types of disabilities and not to those with dyslexia only. Moreover, it is unclear how many participants took part in Tee *et al.*'s study (2010). Nonetheless, findings from the above-named studies seem to be congruent with those of a bigger study by McCandless, Sanderson-Mann and Wharrad, (2006), in which questionnaires were sent to 71 students with and 71 students without dyslexia, the response rate of which was seventy-five per cent (McCandless, Sanderson-Mann and Wharrad, 2006). The authors found that students with dyslexia were more likely to report having difficulty with completion of care plans and patients notes than their non-dyslexic counterparts. It was, however, unclear as to how many students from each group participated in the research.

1.7.1 Slow at completing work

Apart from difficulties in reading and writing, Snowling (2000) and Nicholson *et al.* (2010) associated slow processing speed with dyslexia. It was however, not made clear by these authors as to whether their findings meant that individuals with the condition are likely to take more time in completing care plans and other documents when in clinical practice. Findings from a collective case study on students with learning difficulties in the USA by Kolanko (2003), and from other qualitative research reports from the UK, such as by Illingworth (2005), Morris and Turnbull (2006), White (2007), Crouch (2008) and Ridley (2011), suggested that this might be the case, except that, their research was not of comparative nature. The samples studied were also small in each case. However, their findings were congruent with those from a small comparative study of six nurses with dyslexia and six without, by Child and Langford (2011). The reports were also based on what the participants told the researchers and were not based on any formally organised



observation. The findings do, however, imply that dyslexia affects the practice of nursing and midwifery students and so has implications for practice and more research is required to confirm those findings.

1.7.2 Associated dyscalculia, mathematical learning difficulty and safety

It could also be noted from the task analysis for both nurses and midwives, that their practice involves the administration of medicines (Appendix 1B figure 1b, p267; Appendix 1C, Tables 1a, b and c, p.271-2). Duffin (2001) argued that potential risks to patients such as drug errors could be created for individuals with dyslexia if they do not receive appropriate support, although that was unfounded because not all individuals with dyslexia have dyscalculia or mathematical learning difficulties. Nonetheless, the 'use of a computer programme to assess the presence of dyslexia and its effects on administration of drugs skills in 40 student nurses and six qualified nurses' showed that, 'the greater the tendency to dyslexia the poorer the potential cognitive ability to effectively provide skills associated with drug administration' (Millward *et al.*, 2005, p.341). In their literature review, Dale and Aikens (2007) identified that only some individuals with dyslexia have dyscalculia, which 'is a condition that affects the ability to acquire mathematical skills' (DfES, 2001, p.2). The symptoms of this included 'difficulties with ideas of number size, which makes it problematic to estimate and compare numbers' (Dale and Aitken, 2007, p.19). The BDA (2016, p.1) also suggested that dyscalculia is 'characterised by impairments in processing numerical magnitude and performing accurate and fluent calculations', which has implications for the practice of a nurse or midwife. Cowen (2010, p.17) listed more specific symptoms of dyscalculia including difficulty in reading and writing down numbers, 'conceptual problems with units of measurements' such as microgram, milligram and/or gram, difficulty in estimating or giving approximate answers, all which could impact on an individual's ability to calculate or administer drugs safely.

Research findings by Morris and Turnbull, (2006), Crouch (2008; 2008a), and by Ridley (2011) supported those of Dale and Aitkens (2007) implying a potential problem in drug calculations although there were no reports of errors relating to drug administration as such in any of those studies. Moreover, in Ridley's study (2011), some participants showed responsibility by reporting that they took more care to avoid making mistakes, particularly with drug calculations, however, the sample studied in that research was only seven. Wright (2013, p.35) 'argued for the need to move away from the culture of blame' when it comes to medication errors. Wright gave examples of drug errors made including the 'root causes' and none of them appeared to be related to dyslexia (2013, p.38). Unclear prescription charts, lack of experience, and working under stress, were identified as the main contributing factors to drug errors (Wright, 2013).



This is supportive of Carol's (2004, p.208) suggestion that 'it cannot be assumed that individuals with any disability will be unsafe simply because they have a disability', stressing the importance of an individualised approach when considering applications for entry into nursing, since people with disabilities are not of a homogeneous group. Although Carol (2004) appeared to be referring to people with physical disabilities, her argument is applicable to other forms of disabilities, including those with dyslexia. Like Carol (2004), Shrewsbury (2012) argued that there is no evidence to suggest that healthcare workers including medical students with dyslexia are unsafe. Some 24% of the research participants in Wright's (2000) study did, however, consider this specific learning disorder (dyslexia) as a real risk in practice despite limited evidence at the time of the research in the field of nursing and midwifery.

Although there does not seem to be any evidence currently to suggest that drug errors were made by individuals with dyslexia who also have dyscalculia, it is arguable that any difficulty with calculation of figures or indeed with the reading of figures is potentially dangerous. This is, because, it could lead to miscalculation and the giving of a wrong drug dose to a patient; hence appropriate strategies are required to help individuals overcome any difficulties that pose risk to them. More research is also needed on the possible impact of dyslexia on the students' practice.

1.7.3 Emotional challenges

Following their comparative study of 16 students with and 16 students without dyslexia, Riddick *et al.*, (1999) also reported that student nurses with dyslexia reported significantly lower self-esteem than those without dyslexia. Other research reports suggest that judgemental attitudes encountered by some of the research participants may have contributed to a lack of confidence and low self-esteem for some students with dyslexia which in turn could be both practically and emotionally challenging (White 2007; Ridley, 2011). Although a small sample was used and was based on accounts given by participants of the studies in a non-comparative nature, aspects of these reports seem to be congruent with those of Riddick *et al.*, (1999). Moreover, the above accounts support the idea that dyslexia is a long-term disorder and affects the students' practice in different ways. Although research on the possible impact of dyslexia on the student nurse's practice is growing, there is very little research on this issue in the field of midwifery.

1.8 Fitness for practice, employability and legislation

All the above points made have implications for practice because the NMC is required by the Nursing and Midwifery Order (2001) to maintain a register and to prescribe requirements to be met in relation to good health and good character (NMC, 2004a; NMC, 2010c). This is 'to satisfy the registrar that an applicant is capable of safe and effective



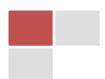
practice as a nurse or a midwife' (NMC, 2010c, p.6). The Order allows the NMC to also 'establish requirements for admissions and continued participation' in approved educational institutions (NMC, 2010, p.6).

Besides practising registered nurses and midwives, nursing and midwifery students are required to be fit for practice, for purpose and award and for professional standing, as well as to be competent at the point of registration (NMC, 2004b; NMC, 2010; NMC, 2014) 'without restriction' (NMC, 2014a, p.4). This has also meant the establishment of fitness to practise committees to deal with the practice, health or character of any pre-registration student in all nursing and midwifery schools as required by the NMC (NMC, 2008a; 2009: 2014b; David and Lee-Woolf, 2010) to monitor and deal with any issues that may arise. However, Stanley *et al.*, (2011), found that knowledge of fitness standards varied amongst professionals and students reported that, they were uncertain about their relevance and criticised them 'for their lack of specificity and transparency' (2011, p.27). Guidance on fitness to practise should thus be made explicit in order to promote equity.

1.8.1 Definitions of 'fitness for practice' and implications for employment

The NMC (2010, p.147) describes a 'student and/or a practitioner who is fit to practise as one who is able to practise safely and effectively without supervision'. It continues to define the term 'fit to practise' as 'a nurse or a midwife's suitability to be on the NMC register without restrictions' (2010b, p.147; NMC, 2015a, p.4). This means 'having the skills, knowledge, good health and good character to do one's job safely and effectively' on registration as a nurse and/or a midwife (NMC, 2010a, p.5). Thus, approved educational institutions for nursing and midwifery education are required to design their programmes in ways 'that prepare students to practise safely and effectively to enable them to assume full responsibility and accountability for their practice' on registration (NMC, 2009, p.3). To 'be deemed fit to practise' (Child and Langford, 2011, p.40), individuals need to demonstrate the required knowledge and skills which are dependent on literacy and numeracy skills (NMC, 2004; 2009; 2010; 2011). Having acquired skills and knowledge needed, one needs to 'take responsibility for' one's own learning to ensure that the knowledge and skills acquired are regularly updated (NMC, 2010; 2011, p.16).

Fitness to practise also implies the need for one to be in good health which the NMC (2011, p.6) defines as 'capable of safe and effective practice without supervision'. It could be noted that the definition of good health is the same as that of fitness for practice both of which imply that the student must be able to practise autonomously at the point of registration. The definition of fitness to practise as above seems to be in conflict with that of disability, which reflects the medical model of disability (Sec 1.3.1; Barnes and Mercer, 2006). This is because dyslexia is portrayed as a long-term condition (specific learning



disability) associated with long-term difficulties (Ingesson, 2007; Firth *et al.*, 2013) related to literacy, short-term memory, and processing (BDA, 2014), which can arguably affect practice. However, the NMC makes it very clear that good health does 'not mean the absence of any disability or health condition' (2010, p.6). This means one may have a health condition or a disability although be deemed fit to practise; in other words, to be employed, provided the individual is able to practise safely and effectively without supervision, with or without adjustment.

Good character is also considered as an important aspect of fitness for practice (NMC, 2008a) and is 'based on a person's conduct, behaviour and attitude' (NMC, 2010d, p.6). Although difficult to quantify, the NMC (2010a, p.8) regards sufficiently good character as 'nurses and midwives' who are 'honest, trustworthy and capable of safe and effective practice without supervision'. It does, however, suggest the need for educational institutions to consider during assessment of fitness to practise, the following points:

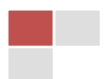
- 'Whether or not convictions are disclosed
- Any risks to patients
- The applicant's pattern of offending
- Length of time since an offence
- An applicant's explanation of the offence
- Circumstances surrounding the offence
- Any references of good character or evidence submitted by the applicant
- The applicant's commitment 'to work safely and effectively upholding the trust and confidence of patients and clients' (NMC, 2010c, p.8).

According to the NMC, care should be taken to avoid the misuse of a local fitness to practise panel and a referral should only be made where 'a student's health or disability is likely to compromise or has compromised their ability to meet the required competences and practice safely without supervision' (NMC, 2015a, p.1). The provision of appropriate support for individuals with dyslexia in the practice areas cannot, therefore, be over emphasised.

1.8.2 Transition from higher education to registration and employment

The NMC (2010c) has a responsibility to meet the Equality Act (2010) as well as safeguard the health and well-being of service users. Upon the successful completion of their education and training to become a nurse and/or a midwife and as part of the registration process therefore, the NMC requires all successful candidates to declare that they are fit to practise, in good health and have good character.

In order to be employable, higher education students, including those in nursing and midwifery fields, are also expected to have certain key skills including planning and



analysis, communication, creative, innovative, reflective, enterprising and leadership skills, apart from intellectual ability (Tibby, 2015), all of which are reflected in the NMC standards and competences (NMC, 2009; 2010). However, according to the Higher Education Academy (Tibby, 2015, slide 4), 'employability goes well beyond the simplistic notion of key skills; it is evidenced in the application of a mix of personal qualities and beliefs, understandings and skillful practices'. To practise skillfully, work-based learning is essential (Quality Assurance Agency for Higher Education–QAA, 2014) and is a mandatory requirement for both nurses and/or midwives in their education and training prior to registration as qualified nurses or midwives (NMC, 2009; 2010), and it is in line with the Higher Education Academy guidelines to enhance employability (QAA, 2014; Tibby, 2015). The provision of appropriate support for student nurses and student midwives with or without disability, by qualified nurses and midwives from both the academic and practice areas is essential for the acquisition of skillful, reflective, safe and competent practice.

Being capable of safe and effective practice also implies the ability to work in different settings. However, individuals with dyslexia are likely to experience different challenges when they move into higher education and move from one placement into another (Mc Guckin, Shevlin, Bell and Devecchi, 2014), or get employed (Ingesson, 2007; Bell, 2010). Howling, Halligan and O'Toole, (2014) advocated that such challenges can also impact on the practice of such individuals negatively. Bell (2010) also found that different demands within new work settings, which mean learning new skills, can affect individuals with dyslexia and the individual may leave where it becomes too challenging. Although the sample in Bell's study was small, and related to adults with dyslexia in different employment backgrounds and settings, it has implications for nursing and midwifery training since it involves moving from one placement area to another.

The transition of nursing and midwifery students into registered practitioners who are fit for practice both require, therefore, the ongoing collaborative support of the students by personal academic teachers and mentors amongst others. The continued active links with employers (Quality Assurance Agency for Higher education, QAA, 2014) is also vital in order to enhance employability. Evidence suggested that individuals with dyslexia, who received appropriate and tailored support, had good progression rates comparable to those without dyslexia (Wray, 2010; Wray *et al.*, 2013; Wray and Pace, 2015).

1.9 Reasonable adjustments

Education programme providers and employers are required to provide reasonable adjustments in line with the Equality Act (2010) for individuals with disabilities and, according to the NMC (2010a, p.1), the development of any such adjustments should 'be creative, innovative and inclusive'. This requires those who support nursing and midwifery



students to be knowledgeable and have understanding of dyslexia and its possible impact on the students' practice. However, previous research revealed that mentors lacked understanding of dyslexia (Crouch, 2008). According to the Special Education Needs and Disabilities Acts, (SENDA, 2001; 2010), reasonable adjustments are meant to ensure that people with disabilities (in comparison with those without) are not disadvantaged in any way (Price and Gale, 2006). This led to the 'shifting of discrimination and adjustment costs from the employee to the employer' (Bell and Heitmueller, 2008, p.478) and in line with the social model of disability (Roulstone, 2004; Sec 1.3.1). Adjustment costs are also expected to be met by programme providers.

1.9.1 Issues of disclosure

This requires lecturers, staff and mentors, who support nursing and midwifery students, to be aware of any disabilities their students may have. However, research showed that many healthcare students and staff with dyslexia and/or other disabilities did not disclose for fear of being stigmatised, treated differently or being regarded as stupid (Morris and Turnbull, 2006; Price and Gale, 2006; Crouch, 2008; 2008a; Kane and Gooding, 2009; Dearnley, Elliot, Hargreaves *et al.*, 2010; Ridley, 2011; Child and Langford, 2011; Hargreaves *et al.*, 2009; 2014; Howlin, Halligan and O'Toole, 2014). Another study of 21 nurses, 20 social workers, and nineteen teachers with different types of disabilities, including dyslexia, by Stanley *et al.*, (2011) reported that, although as many as 46 of the 60 participants said that they disclosed their disabilities, and eleven had partially disclosed, three had not disclosed. Moreover, practising nurses and social work students were more likely to tell a negative story about staff attitudes towards them after disclosure than the other participants. The sample of each profession studied was small, however, the issues related to non-disclosure also apply to other healthcare workers and professions and are not unique to nursing (Stanley *et al.*, 2011). There were also problems with disclosure in individuals with disabilities other than dyslexia (Ridley *et al.*, 2011; Stanley *et al.*, 2011). Such individuals could have ended up receiving support howbeit not necessarily specifically related to their disabilities (Crouch, 2008; Kane and Gooding, 2009). Disclosure, on the other hand, helped to assess individuals' needs and to provide the necessary support (Equality Challenge Unit, 2010; Traylor, 2011) hence this might have been perceived positively as noted by De Beer *et al.*, (2014) in their review of studies on learning disabilities in the USA. However, Stanley *et al.*, (2011) found that only 61% of practitioners and 77% of students said they received some adjustment or accommodation following disclosure although the reasons for uptake of reasonable adjustment only by some were not stated.

1.9.2 What is reasonable and what could be adjusted?

According to Cowen (2010), there does not appear to be any legal definition of the term 'reasonable adjustment' so individuals are left to decide whether or not any adjustments



made are reasonable. Having to make decisions as to what makes an adjustment reasonable or unreasonable is challenging, hence this poses a dilemma to both students with disabilities and the staff in the clinical areas (Hargreaves *et al.*, 2014). This has been shown in situations where students with 'severe numeric and word dyslexia made it impossible for them to accurately assimilate information' and/or to accurately document information even with adjustments (Hargreaves *et al.*, 2014, p.309). According to Hargreaves *et al.*, (2014), it was debatable as to whether the adjustments provided for the students were or were not reasonable. Cowen (2010) advocated that an adjustment that might be considered and agreed as reasonable for a student with a disability might become unreasonable if needed in excess, and that, every request for adjustments made should be considered and which has implications for the assessment of fitness to practise.

The NMC (2010a) has a responsibility to meet the Equality Act requirements to provide reasonable adjustments for students with disabilities (The Equality Act, 2010; ERHC, 2012) as well as safeguard the health and well-being of those who use or need services provided by nurses and/or midwives. This means, with or without disabilities and/or reasonable adjustments, a student nurse or student midwife is required to be competent and meet the NMC standards (Appendix, 1C) effectively and without supervision at the point of registration and on employment as a nurse or midwife. This is in line with requirements by SENDA (2001) which stressed that educational standards should not be compromised to accommodate students with disabilities and highlighted that the maintenance of course standards is a criterion for determining whether or not an adjustment is reasonable. The NMC (2010b) also echoed this by stressing that the competencies and standards that need to be achieved are themselves not subject to a reasonable adjustment. It is the way and/or means by which a learner achieves a competency or standard that is subject to reasonable adjustment; so, an assessment should be carried out to ascertain and establish how an individual would achieve a competency or a standard (NMC, 2010d; Traylor, 2011). The NMC also requires qualified staff to support 'colleagues who are encountering health or performance problems, but this support' according to the NMC (2015b, p.8) 'must never compromise or be at the expense of patients or public safety'.

Both SENDA (2010) and the General Medical Council (2010) advocated that consideration should be given to practicability, financial and other costs, health and safety requirement, relevant interest of other people, and the availability of any resources required when assessing whether or not an adjustment is reasonable. According to Bell and Heitmueller (2008, p.478) 'employers will hire or retain an employee if the benefits from doing so outweigh the costs'. This implies that the issues involved in assessing for, recommending and implementing any reasonable adjustment, are complex and should be handled with great care (Cowen, 2012).



1.9.3 Available adjustments and coping strategies

Evidence suggests that support for people with disabilities including those with dyslexia is well established in higher education institutions (Wright, 2000; Wright and Eathorne, 2003). Adjustments recommended for students with dyslexia in the higher education sector, for instance, include the giving of extra time for examinations, giving out handouts before class starts, use of appropriate coloured background to enhance reading, and use of software on personal computers and other mobile technology to assist with spelling or understanding of words and with writing (Wright, 2000; Tee and Cowen, 2012; Dearnley, Elliot, Hargreaves *et al.*, 2010). Another example of good practice is embedded in policy by the University of Northampton to allow audio recording of lectures by students and which, according to the Higher Education Funding Council (HEFCE, 2009, p.20), meant that ‘the University was making anticipatory reasonable adjustments under the DDA’. However, very little is written on strategies not related to literacy. According to Tee *et al.*, (2010), recommended adjustments by staff in the higher education settings are not necessarily transferred into the clinical fields. Nevertheless, universities have a legal obligation to provide the necessary support for students who have any form of disability including specific learning difficulties such as dyslexia, in both academic and clinical settings (Equality Challenge Unit, 2010). It is, therefore, arguable that some of the adjustments made or suggested to the students with dyslexia are transferred into practice where appropriate. What was unclear was whether such adjustments were also useful to the students when working in the clinical areas as they face different challenges. Emphasis also seems to be placed on the need for provision of appropriate support for students in general and particularly for people with disabilities yet very little is written on their effectiveness (Storr *et al.*, 2011; Howlin *et al.*, 2014).

Dearnley, Elliott, Hargreaves *et al.*, (2010-case 3), for example, evaluated a mobile device used for learning and assessment of students and practitioners with disabilities in practice in their study. Howlin, Halligan and O’Toole (2014a, p.565) also evaluated ‘a clinical needs assessment’ and explored ‘associated supports for disabled students in clinical practice’. However, this was based on only two nursing and one midwifery students with dyslexia and one student nurse with mental health issues. Moreover, the evaluation by Dearnley, Elliott Hargreaves *et al.*, (2010) and by Howlin, Halligan and O’Toole (2014a), related to provided accommodations only, which highlights the need for more research.

The development of coping strategies has been linked to success in adults with disabilities (Goldberg *et al.*, 2003). Evidence suggests that students with dyslexia develop strategies to assist them with literacy and practice skills by UK researchers (Morris and Turnbull, 2006; Price and Gale, 2006; Sanderson-Mann and McCandless, 2006; White, 2007; Crouch, 2008; Ridley, 2011; Tee and Cowen, 2012), USA (De Beer *et al.*, 2014) and Australian



authors (Ryan and Brown, 2005). There is, however, a lack of evidence on the perceptions of nursing and midwifery students (with dyslexia) and of mentors of such strategies, particularly in clinical practice. This stressed the need to conduct research on strategies that nursing and midwifery students develop when working on placements and their perceptions on such strategies to help identify those they find useful and to develop a new tool to help them in practice.

There is also little in terms of guidance or workbooks for mentors and qualified staff in the practice areas for supporting students with disabilities, inclusive of those with dyslexia (Dearnley, Elliot, Hargreaves *et al.*, 2010- case 3). Strategies identified in the recently developed RCN tool kit seem informative and include strategies intended to help people with disabilities, including those with dyslexia, to combat difficulties related to organisation and poor memory (Cowen, 2010). However, the strategies are very generic for those with dyslexia, dyscalculia and dyspraxia. Although informative, not everyone with dyslexia has dyscalculia, which 'is a condition that affects the ability to acquire mathematical skills' (DfES, 2001, p.2; Sec 1.8.3), and/or dyspraxia which is 'a developmental coordination disorder' (Cowen, 2010; p.14). The tool kit is also very lengthy and it is based on a booklet supporting students with dyslexia in practice, the development of which was based on a very small sample (Cowen, 2010; Tee *et al.*, 2010). Crouch (2008; 2009; Higher Education Academy-HEA, 2009) also developed poster guidelines to help mentors supporting students with dyslexia in practice and this has been in use by mentors supporting students. The poster had won a national award (Crouch 2009a; HEA, 2009) and informal evaluations of the poster guidelines seemed very positive. However, a formal evaluation by the mentors, for whom they were developed and by the students who the guidelines were meant to be used for, was needed to allow adjustments to be made where necessary. This, coupled with the almost non-existence of research on the chosen topic in the midwifery fields led one to consider and undertake this study with the set aims and questions below.

1.10 Aims and Questions: reasons for changes made

On enrolment as a student one had originally intended to explore the impact of dyslexia on the nursing and midwifery students, their experiences in clinical practice and how their experiences in the clinical areas could be enhanced. The aims were however, too similar to what one had explored in a previous study. This research needed to be new and should make an original contribution to current state of knowledge in the nursing and midwifery fields in relation to specific learning disorder (dyslexia) in order to meet the criteria for PhD.

The first aim was, therefore, adjusted to explore what 'reasonable adjustments' were identified by nursing and midwifery students with dyslexia for themselves and those that were identified for them by staff. However, the phrase 'reasonable adjustments' was rather



sensitive and literature suggested that there is no known legal definition of the phrase (Cowen, 2010), so it would have been difficult to study. Further adjustment of the aims was therefore needed. The definitions of dyslexia and the very limited research papers in the nursing and midwifery fields also suggested that dyslexia is likely to impact on the nursing and midwifery students both academically and in practice. Moreover, those who support the students' transition into registered practitioners need to demonstrate a good understanding of dyslexia, how it might impact on the students' practice in the nursing or midwifery fields, and knowledge of strategies that could be useful and which is research based, in order to facilitate appropriate support.

The aims were, therefore, re-reviewed and re-adjusted to explore the impact of dyslexia on the nursing and midwifery students and the strategies used (developed by the students themselves or those used by others) to help them overcome any associated difficulties when in clinical practice. The second aim was to evaluate the experiences and perceptions of the students and mentors of the tool kit used by the nursing and midwifery students with dyslexia. However, some suggestions made following submission to the University's research ethics committees and further discussions with supervisors, led to further adjustment of the aims and which are as follows:

1.10.1 Final Aims of the research

A qualitative model (see Chapter 2, p.47) was used to explore the perceived impact of dyslexia on nursing and midwifery students and the coping strategies they use to help them overcome any associated difficulties when in clinical practice. Experiences and perceptions of nursing and midwifery students with dyslexia, and the mentors' evaluation of the usefulness of the tool kit (poster guidelines used for supporting nursing and midwifery students with dyslexia in clinical practice developed by the researcher and which has been in use for some time) were also explored to allow for adjustment to be made where necessary. In order to help achieve the above aims, the following questions were set and addressed:

1.10.2 Research questions that were addressed

1. What is the perceived impact of dyslexia on the nursing and midwifery student in clinical practice?
2. How are any difficulties associated with dyslexia managed by the nursing or midwifery student?
- 3i What strategies can help and support dyslexic nursing and midwifery students?
- 3ii What are students' and mentors' perceptions on the poster guidelines used by mentors to support nursing and midwifery students with dyslexia in clinical practice?



1.11 Summary

The introduction of the Discrimination Act of 1995 (superseded by the Equality Act of 2010), the widening participation movement and the modernisation of the NHS, have resulted in an increase in the number of people with disabilities who access and enrol onto higher education courses. The employment rate for those with disabilities, including those with dyslexia, has also increased. Nursing and midwifery courses are, however, very demanding and students are required to achieve set standards and competencies, be fit for practice, with or without disability and/or reasonable adjustments without supervision, at the point of registration. The nature of dyslexia also suggests that the condition might impact on the nursing and midwifery students, both academically and in practice. A deeper understanding of dyslexia and its possible impact on the student is clearly required. However, research on this topic is very limited, especially in the field of midwifery.

Although students with dyslexia tend to develop coping strategies and or use provided adjustments and other available resources, there is limited evidence of their appropriateness. These, coupled with the limited guidance in terms of booklets or tools for mentors supporting students with dyslexia, all contributed to the need to conduct this research, hence the development of the above aims and questions to be addressed.



CHAPTER 2

METHODOLOGY (STUDY DESIGN): RATIONALE FOR CHOICE

2.0 Introduction

According to Clough and Nutbrown (2012, p.36), attempting to define research methodology, that serves ‘the purposes of all researchers’, is like trying to use a net to catch water, and different researchers seem to give slightly different definitions of the term. According to Persell (cited at www.asanet.org, 2008, p.3), for instance, research methodology is to do with ‘the rules, principles, and practices that guide the collection and analysis of evidence and the conclusions drawn from it’. Other authors such as Dodd (2008, p.7), and Feast and Melles (2010, p.1-2), defined research methodology ‘as the strategy, plan of action or design behind the choice of particular methods, which links the choice of methods to the desired outcomes’. It could be said then that the term methodology refers to ‘all matters regarding the structure and design of the research’ (Hancock, 2000, p.7). It includes consideration of the purpose of the study, the theory to inform and guide the study, research questions, sampling strategy, and specific data collection and analysis methods and techniques to be used (Hancock, 2000; Carter and Little, 2007; Dodd, 2008; Robson, 2011).

To distinguish between research methods and methodology, Clough and Nutbrown (2012, p.25) described them in the simplest terms, by likening research methods to ‘some of the ingredients of research’ and methodology as ‘what provides the reason for the use of a particular research recipe’. The aim of methodology is ‘to explain the particularity of the methods made for a given study and it requires researchers to justify their particular research decisions from the beginning’ ‘to the conclusion of their study’ (Clough and Nutbrown, 2012, p.21).

In this chapter, therefore, a brief overview of some of the key philosophical assumptions and research methodological paradigms is given, after which the main research approaches and the chosen paradigm to help achieve the aims of this research as stated in chapter 1 are discussed. The rationale for choice of methodology, the chosen research methods, the ethical principles that were applied and the reasons for same are also discussed.

2.1 Philosophical assumptions

There has been an ongoing debate about the nature of the world (ontology) and how it is



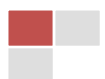
investigated and understood (epistemology), (Guba, 1990; Guba and Lincoln, 1994; Griffiths, 2009; Cohen, Manion and Morrison, 2011; Robson, 2011; Table, 2a). All research is said to be 'interpretive and guided by the researchers' beliefs and feelings about the world and how it should be understood' (Denzin and Lincoln, 2005, p.22), although some critics argued that 'there is no such thing as qualitative data' (Cohen, Manion and Morrison, 2011, p.21). There are varied philosophical paradigms including positivism (reality is objective), post-positivism (imperfect reality, critical realism), constructivism, interpretive (relativism, constructed realities subjectivity), critical theory (historical realism) (Guba and Lincoln, 1994; Travers, 2001; Clarke, 2005; Saks and Allsop, 2007; Cohen, Manion and Morrison, 2011; Robson, 2011; Denzin and Lincoln, 2013). An overview of some of these is given in Table 2a. Further discussion on how aspects of such philosophical assumptions are viewed within the quantitative, qualitative and mixed methods paradigms is given in sections 2.1.1, 2.1.2 and 2.1.3 of this chapter.

Table 2a Overview of philosophical paradigms

Assumption	Questions	Positivism	Post-positivism	Constructivist/ Interpretive/ Naturalistic	Critical theory
Ontological	<ul style="list-style-type: none"> What is the nature of reality or the world? 	<ul style="list-style-type: none"> Naïve realism Reality but apprehendable 	<ul style="list-style-type: none"> Critical realism Real, reality Imperfect 	<ul style="list-style-type: none"> Relativism Local and specific constructed realities 	<ul style="list-style-type: none"> Historical realism; apprehendable reality shaped by politico-socio-economic, cultural and gender factors
Epistemological	<ul style="list-style-type: none"> How do we investigate and understand reality or the world? 	<ul style="list-style-type: none"> Dualist/ objective True findings 	<ul style="list-style-type: none"> Modified dualist Objective Findings are probably true 	<ul style="list-style-type: none"> Reality is subjective and multiple as seen by participants in the study Created findings 	<ul style="list-style-type: none"> Transactional subjective value laden findings
Methodological	<ul style="list-style-type: none"> What is the research process? 	<ul style="list-style-type: none"> Quantitative paradigm Experimental Manipulative Deductive Research design categories Generalisations leading to predictions, explanations Static research design- categories determined before study 	<ul style="list-style-type: none"> Quantitative modified experimental/ may include qualitative – mixed methods Critical multiplism 	<ul style="list-style-type: none"> Qualitative Hermeneutical The researcher interacts with the participants of the study Inductive process Emerging design categories identified during research process 	<ul style="list-style-type: none"> Dialectical Qualitative Combined Observation and Interview Reflective

Adapted from Guba and Lincoln (1994, Handbook of Qualitative Research, Table 6.1) with permission from Sage Publishing, USA

There are two main types of research approaches, namely quantitative and qualitative models or paradigms (Clarke, 2005; Robson, 2011). In this paper, the terms 'research approach', 'design' and 'paradigm' are used inter-changeably. The quantitative paradigm was dominant until the 1970s when qualitative paradigm became more established from the mid-1970s to the 1990s, following what was described as the 'quantitative-qualitative



paradigm wars' and which led to the development of the mixed methods paradigm (Robson, 2011, p.164).

Guba and Lincoln (1994, p.107) defined a paradigm as a 'set of basic beliefs that deals with ultimates or first principles' and which represent a worldview for 'its holder, the nature of the world, the individual place in it and the range of possible relationships to that world and its parts'. Paradigms are, therefore, described as shared beliefs amongst researchers (Morgan, 2007; Robson, 2011). However, those beliefs seemed to have been accepted merely on faith and were not based on any known established truthfulness (Guba and Lincoln, 1994), some of which are discussed in the next section.

2.1.1 Quantitative paradigm

The quantitative paradigm is 'also known as traditional' (Clarke, 2005, p.9) and is underpinned by the branch of philosophy of human enquiry known as positivism (Guba and Lincoln, 1994; Pollit and Hungler, 1999; Walker, 2005; Robson, 2011; Table 2a). It is based on the belief of the view of the world as a machine and that the aim of science was to find out the laws by which the machine operated (Carter, 2000). It is assumed that reality is objective and singular, apart from the researcher (Clarke, 2005) and 'that objective accounts of the real world can be given' (Guba and Lincoln, 1994; Denzin and Lincoln, 2011, p.15). Measurement and quantification of observable data is seen as the means by which the world could be understood, and perfect predictability naturally achieved after the discovery and study of the laws, so usually characterised by the use of statistics (Cater, 2000). The application of objectivity and neutrality also mean participants of a study are seen and treated as science objects (Robson, 2011). However, Guba (1990), and Hunt (1992) argued that methods located within the quantitative paradigm tend to be presented in mechanistic ways without due consideration of the varied views of human beings and their behaviour that the methods implicitly reflect. Guba (1990) and Hunt's (1992) argument was echoed by many other researchers such as Travers (2001), Saks and Allsop (2007), Cohen, Manion and Morrison (2011), Robson (2011), Denzin and Lincoln (2011; 2013).

Additionally, positivists such as the 18TH century philosopher David Hume advocated that the aim of science is to develop universal causal laws known as constant conjunction of events (Robson, 2011). This means the positivists look for the existence of a constant relationship between events or two variables and this seems straightforward when dealing with non-human situations. Robson (2011, p.21) argued however, that when the main focus of the study is on people, during real world research in the social context, 'constant conjunction is so rare to the point of non-existence'. Facts are also seen as separate from values even though critics of this paradigm argued otherwise (Broom and Willis, 2007; Denzin and Lincoln, 2013).



Other critics of positivism also argued that quantitative research designs do not give sufficient attention to the lived experiences of a person (Rubin and Rubin, 2005; Broom and Willis, 2007). This is because although the use of measurements helps to inform us of how many individuals behave in certain ways, measurements do not adequately explain the reasons for the behaviour (Hancock, 2000; Broom and Willis, 2007). A scientific approach is, therefore, seen as inappropriate for social science (Robson, 2011).

2.1.1i Types of Quantitative research

There are different research designs that are located within the quantitative paradigm, knowledge of which was important to allow one to decide on the right choice of research design after deciding on the type of data required for study. Carter (2000), Hancock (2000), Walker (2005), and Robson (2011) described different types of quantitative research designs, namely descriptive correlational, and quasi-experimental designs that could be used, each of which have certain features and considers different sampling methods and methods for data collection and analysis (see Table 2b).

Table 2b- Examples of Quantitative research

Research type	Descriptive	Correlational	Experimental	Quasi-experimental
What it is about/ purpose	<ul style="list-style-type: none"> Aims to give account of the characteristics of individuals, groups or situations. 'The main aim is to discover new meaning, describe what exists, the frequency with which something occurs and categories information' (Walker, 2005, p.572) 	<ul style="list-style-type: none"> The systematic investigation and explanation of the nature of relationships between variables in the real world. The purpose is usually to 'generate a hypothesis that can be tested in an experimental study' (Walker, 2005, p.573) 	<ul style="list-style-type: none"> The use of rigorous control of variables for testing cause and effect relationships e.g. 'whether one type of medication is more effective in treating a particular condition' (Hancock, 2000, p.9) 	<ul style="list-style-type: none"> As for experimental designs except it 'does not involve random allocation of participants to different groups' (Robson, 2011, p.136)
Sampling methods	<ul style="list-style-type: none"> Disproportionate Stratified 	<ul style="list-style-type: none"> Stratified sampling Quota sampling 	<ul style="list-style-type: none"> Random sampling Stratified sampling 	<ul style="list-style-type: none"> Non-randomised
Data collection methods	<ul style="list-style-type: none"> Questionnaires Interviews Observation 	<ul style="list-style-type: none"> Structured questionnaire 	<ul style="list-style-type: none"> Questionnaires Measuring tools 	<ul style="list-style-type: none"> Questionnaires Measuring tools
Data analysis	<ul style="list-style-type: none"> Statistical 	<ul style="list-style-type: none"> Statistical correlation coefficient 	<ul style="list-style-type: none"> Statistical 	<ul style="list-style-type: none"> Statistical

2.1.2 Qualitative paradigm

On the other hand, underpinning qualitative research is the assumption that not only do human beings react, they also act upon and develop the meaning of their experiences so that the inner and external realities interact and cannot be separated (Denzin and Lincoln, 2013). Philosophically, it is also assumed that reality is constructed only by conceptual system rather than 'set in stone' (Broom and Willis, 2007, p.25). In this paradigm, however, reality could only be defined subjectively and seems to be interpreted as a social action (Cohen, Manion and Morrison, 2011; Robson, 2011).



According to Hancock (2000, p.55), the qualitative model, however, 'attempts to increase our understanding of why things are the way they are in our social world and why people act the way they do' with the aim of documenting and interpreting the totality of whatever has been studied from the people's viewpoint within a particular context. This encompasses identifying, studying, and analysing subjective data to help understand the internal and external world of people (Denzin and Lincoln, 2013). Qualitative paradigm also tends to employ an 'interpretive, naturalistic approach to its subjects' in order to capture the 'meanings and understanding of people in everyday life' (Allsop and Saks, 2007, p.395) so it is suggested by Broom and Willis (2007) that it is high on validity. The words people use to describe their experiences and how they express themselves are the main focus of research in the qualitative paradigm with the aim of looking for meaning and reasons given for a particular point (Myers and Barnes, 2005). However, there are varied interpretations and perspectives on a single event and situation. It is, therefore, essential to explore and try to understand events through the eyes of the participants of the study rather than those of the researcher (Cohen, Manion and Morrison, 2011).

Qualitative design also tends to lend itself to the use of small samples as compared to that of quantitative designs due to the method of data collection (Table 2c) and the amount of data generated, and which makes generalisability difficult (Robson, 2011; Denzin and Lincoln, 2013) although some researchers using qualitative methods sometimes attempt to make unjustifiable generalisations from such small samples (Broom and Willis, 2007). It has, however, been argued that humans are unique individuals and largely non-generalisable (Cohen, Manion and Morrison, 2011).

Apart from less pre-specification, qualitative designs tend to evolve, develop and unfold during the research process and are therefore called flexible designs (Robson, 2011). Choosing to use the qualitative model for this study, therefore, meant changes could be made to some of the questions set, as well as to any chosen methods or techniques for answering the aim and research questions set as required.

2.1.2i Types of research designs in qualitative paradigm

Types of research designs in the qualitative paradigm include phenomenology, ethnography, grounded theory and case studies each with different focus and purpose (Table 2c; Robson, 2011). Although there is less pre-specification prior to data collection, each design lends itself to certain research methods (See Table 2c). Methods in the qualitative paradigm such as in-depth interviews, observation, documents and focus groups are usually used by researchers within the interpretive constructivist paradigm (Broom and Willis, 2007; Table 2c), some of which were employed for this study.



According to Denzin (2008), the paradigm wars led to the rise in the use of qualitative methods and a partial eclipse of the traditionally accepted quantitative methods. They also gave way to the use of mixed methods (Denzin, 2008), which are discussed in the next section.

Table 2c: Types of qualitative design

	Phenomenology	Ethnography	Grounded theory	Case study
Focus	<ul style="list-style-type: none"> Is a philosophy and a research approach that focuses on the meaning of lived experiences about a phenomenon (Husserl, 1977; Cohen, Manion and Morrison, 2011) 	<ul style="list-style-type: none"> To do with describing and interpreting a cultural and social group 'The ethnographers' task is to become an accepted member of the group' (Robson 2004, p.186) 	<ul style="list-style-type: none"> The development of a theory grounded in data collected from the field (Glaser and Strauss, 1965; 1967; 1999) 	<ul style="list-style-type: none"> Development of an in-depth analysis of a single case or multi-cases (Yin, 2008; Robson, 2004)
Discipline Origin	<ul style="list-style-type: none"> Philosophy Sociology Psychology <p>Grew from the belief that people could not be controlled in the same way that natural phenomena could be controlled (Morse and Field 1995, p.28)</p>	<ul style="list-style-type: none"> Cultural Anthropology Sociology 	<ul style="list-style-type: none"> Sociologists Glaser and Strauss (1965;1967) 	<ul style="list-style-type: none"> Political science Sociology, urban studies, evaluation
Sampling methods that might be used	<ul style="list-style-type: none"> Random Purposive Convenience sampling 	<ul style="list-style-type: none"> Purposive Convenience Snowball Random sampling 	<ul style="list-style-type: none"> Purposive /theoretical sampling (Glaser and Strauss 1967) Convenience sampling 	<ul style="list-style-type: none"> Multiple –includes Randomised Convenience Disproportionate Quota sampling Snowball
Data collection method	<ul style="list-style-type: none"> Lengthy interviews (up to 10 people) Observation (Morse and Field, 1995) 	<ul style="list-style-type: none"> Participant observation and interviewing 	<ul style="list-style-type: none"> Face-to-face or Telephone recorded semi or unstructured interviews (20-30 people to saturate categories and generate a theory) Observation 	<ul style="list-style-type: none"> Multiple methods include Interviews (1 to 1, face-to-face, focus groups) Documents, records Observation
Data analysis method	<ul style="list-style-type: none"> Statements/ meanings General description of experience Thematic analysis Content analysis (Morse and Field 1995, p.103) 	<ul style="list-style-type: none"> Description Content analysis ; interpretation 	<ul style="list-style-type: none"> Constant comparative method – substantive - open, and selective coding and theoretical coding, memoing (Glaser and Strauss 1967;1999) 	<ul style="list-style-type: none"> Multiple- includes Description Thematic analysis Content analysis Documental analysis
Narrative form	<ul style="list-style-type: none"> Description of essence of experience 	<ul style="list-style-type: none"> Description of cultural and/or group behaviour 	<ul style="list-style-type: none"> Theory or model 	<ul style="list-style-type: none"> In-depth study of a case or cases

Adapted from Robson, 2004, p.165, Box 6.1 – Research traditions in qualitative research-reproduced with permission from John Wiley and Sons Ltd (Books) via PLSclear.

2.1.3 Mixed methods

The use of elements from 'both quantitative and qualitative paradigms to produce convergent findings, is known as mixed method' (Lingard *et al.*, 2008, p.460). It is also referred to as methodological triangulation and it has been said that it is now the order of the day (Bryman, 2006) as it enables the identification and rectification of errors in single approaches (Johnson, Onwuegbuzie and Turner, 2007; Cohen, Manion and Morrison, 2011) and is 'premised on pragmatism ontologies and epistemologies and which is



essentially practice-driven' (Descombe, 2008, p.280). Proponents of 'what works' approach assert that there is no 'incompatibility between quantitative and qualitative methods either at the level of practice or of epistemology' (Denzin and Lincoln, 2013, p.3).

Different designs could be adopted for mixed method research (Teddlie and Tashakkori, 2009; Table, 2d) that are able to address the numerical and qualitative types of questions and data as necessary. Another advantage is the facilitation of the collection of rich data, triangulation, critical and new ways of thinking, as well as enabling meaning of data collected; however, all the processes involved require great skill and training. Handling of qualitative data is also time-consuming. Nonetheless, the quality of the research is enhanced (Suter, 2005) when the pragmatist approach, that is, when 'what works to answer a research question is adopted' (Cohen, Manion and Morrison 2011).

Table 2d Examples of mixed methods research models

Type	Quantitative and qualitative	Other characteristics
A. Parallel mixed designs	•Both run simultaneously	•Independently address questions
B. Sequential mixed designs	•Run one after the other as required	•One strand determines the subsequent strand
C. Quasi-mixed designs	•Data from each gathered	•Not integrated in answering questions
D. Conversion mixed designs	•Data collected from each design	•Data transformed-qualitative to quantitative and vice versa in a parallel mixed design
E. Multi-level mixed designs	•Different types of data integrated and used at different levels of research e.g. student, school, district	•Statistical data may be used at one level, e.g. student •Qualitative data may be used at another level-school
F. Fully integrated mixed designs	•Mixed methods used at each and all stages	•One stage influences the next/levels of research

Teddlie and Tashakkori, 2009; Cohen, Manion and Morrison, 2011, p.25)

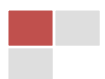
Post-positivists (Critical realists) 'reject methodological individualism and universal claims to truth' (Denzin and Lincoln, 2013, p.22) although they seem to be in agreement with positivists that the world events are observable and independent of human consciousness (Cohen, Manion and Morrison, 2011). They also believe that objective reality exists although imperfectly and probabilistically due to limitation of the research (Robson, 2011). They do, however, adopt pluralists' view of coexisting multiple realities which is in contrast with the single view of an objective held by positivists (Robson, 2011). Their knowledge of the world is seen as conjectural, falsifiable, changing and challengeable (Cohen, Manion and Morrison, 2011). The subjective and varied interpretation of phenomenon is also seen as central, hence has affinity for interpretive naturalistic and phenomenological approaches (Cohen, Manion and Morrison, 2011). Mixed methods are therefore favoured by post-positivists.



2.2 Rationale for choosing qualitative paradigm

The philosophical assumptions that researchers make about the world, are said to shape the way in which they develop their research questions and conduct their research (Griffith, 2009; Neuman, 2011; Table, 2a). Conversely, some types of research questions call for a quantitative approach and others lend themselves to qualitative approaches (Robson, 2011) or for mixed methods approaches (Lingard *et al.*, 2008). Moreover, other factors, including the nature of the problem to be investigated, aims of the study, the audience for the study, the type of data needed to be collected, as well as the training, familiarity of methods and experience of the researcher, tend to influence the choosing of the paradigm (Creswell, 2003; Robson, 2011). Hence, there are pragmatists, that is, those concerned with the need to be guided by practical experience rather than theory. In the light of the growing numbers of pragmatists, it has been suggested that issues related to the adequacy of methods for answering research questions are key to which methodological approach should be adopted instead of allowing philosophical assumptions to shape the way research is conducted (Bryman, 2006; Robson, 2011).

Empirically, one was aware that there were a few nursing and midwifery students with dyslexia and the NMC (2008; 2010) required evidence of how they were being supported both in the academic settings as well as in the field of practice. There was, therefore, a need for one to understand the possible impact of dyslexia on the nursing and midwifery students and of their coping mechanisms in order to suggest appropriate strategies as well as develop appropriate guidelines to help enhance the support of such students in clinical practice. The aims and the questions set for this study also lend themselves to qualitative paradigm. For this research, therefore, the qualitative paradigm of inquiry, which is underpinned by a constructivist interpretive ontological view (Broom and Willis, 2007), was the chosen methodology. According to Broom and Willis (2007, p.25), constructivism interpretive ontology is the notion 'that reality is socially constructed rather than set in stone'. The term 'interpretive approach' seems to be used inter-changeably with the term 'constructivism' (Denzin and Lincoln, 2013) or with the term 'naturalistic' (Guba and Lincoln, 1994; Denzin and Lincoln, 2013). Robson (2011) supported Broom and Willis' (2007) definition of constructivism and explained that constructivists consider that the researchers' task is to understand the multiple social constructions of meaning and knowledge, so they employ the use of interviews and observation to allow them to acquire many perspectives. A qualitative methodology was chosen to enhance one's 'understanding of why things are the way they are' (Hancock, 2000, p.55) as aimed by constructivist interpretive approach (Saks and Allsop, 2007, p.395), the findings of which add to the body of knowledge. It also helped to adjust the current tool kit in use for nursing and midwifery students with dyslexia. Although greater complexity was enabled in the amount of information gathered and in the



interpretation of the data (Denzin, 2013), it was very time-consuming and great skill was required in both the data collection and analysis in order to enable a fuller understanding of the phenomenon being studied. Since emphasis is on the participants as the ones helping to construct the reality, constructivists advocate that the research question cannot be fully established prior to data collection (Robson, 2011). Nonetheless, some initial questions were set (as listed below) to allow one to consider and to set further questions to help collect data:

1. What is the perceived impact of dyslexia on the nursing and midwifery student in clinical practice?
2. How are any difficulties associated with dyslexia managed by the nursing or midwifery student?
- 3i What strategies can help and support dyslexic nursing and midwifery students?
- 3ii What are students' and mentors' perceptions on the poster guidelines used by mentors to support nursing and midwifery students with dyslexia in clinical practice?

This was made possible because less specification takes place and qualitative designs evolve, develop and unfold during the research process (Robson, 2011). Another reason for setting the questions was to give research ethic panels some idea of what one intended to study.

2.2.1 Rationale for choice of a case study approach

Apart from the need for one to understand the chosen topic through the eyes of the participants, the choice of research design (quantitative or qualitative) was also dependent on the purpose of the study, the research question and type of information needed to be gathered (Robson, 2011). This research was, therefore, carried out using a case study approach combined with the grounded theory approach (Glaser, 1992; Glaser and Strauss, 1967; 2008) with a purposive sample (Burns and Groves, 2006; Yin, 2008; Cohen, Manion and Morrison, 2011). Yin (2008) describes a case study (Table 2c) as the study of a case of multiple cases within a particular context and that it allows real life situations of real people to be explored in depth. There are varied classifications and types of case studies; however, for this research one focused mainly on the case studies of choice. Merriam (1998) identified three types of case studies namely the:

- Descriptive case study which is narrative in nature
- Interpretive case study which encompasses the inductive development of conceptual categories to help examine initial assumptions
- Evaluative case study (explaining and judging) (Cohen, Manion and Morrison, 2011)

The interpretive case study, which involves the inductive development of conceptual categories (Merriam, 1998), seems to accord with grounded theory approach (Glaser and

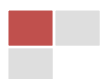


Strauss, 1967; Glaser, 1978; 1992), since the latter is the inductive generation of theory grounded in the data using the constant comparative method, which is explained in more detail later on. Yin (2008) also described four different types of case study designs:

- The single case design in which there is focus on a typical case, unique or representative case
- The embedded, single case design (multiple units of analysis are studied within a particular context)
- The multiple-case design (comparative cases are studied)
- The embedded multiple-case design (different sub-units in each of the different cases are studied) (Cohen, Manion and Morrison, 2011)

An embedded case study approach (Yin, 2008) combined with the grounded theory approach (Glaser, 1992; Glaser and Strauss, 1967; 2008) were employed for this research. The value of 'embedded case study' approach related to the apparent richness of the depth of information collected and analysed, (Yin, 2008, p.46, 50) as it allowed in depth study and analysis (Hancock, 2000; Robson, 2011) of individual cases. According to Reis (2009, p.1) case studies also serve as a means of exploring complex social units which 'consist of multiple variables of potential importance in understanding the phenomenon' and are anchored in real life situations, which result in rich accounts of a phenomenon. This is supported by Rose and Shevelin (2016, p.120) who also advocate that the use of case studies provides 'fine grained documentation of the participants lived experiences'. Dyslexia is a controversial and a complex topic, so the use of the embedded case study approach helped to facilitate the collection of rich accounts of each of the nursing and midwifery students with dyslexia, who are themselves complex individuals. This approach also helped to explore their perceptions of how dyslexia impacted on their clinical practice and the coping strategies they used.

There were, however, limitations in the use of a case study (Rose and Shevlin, 2016). The sample used, for example, was studied in one particular school and which is not necessarily representative of similar cases. This made generalisability of findings difficult. Nevertheless, this does not lessen the value of the findings within that school in the university, because internal generalisability is possible (Robson, 2011; Yin, 2008). Moreover, Reis, (2009, p.1) argued that case studies offer insights and illumination of meaning that expands its readers' experiences, and that what is learnt from 'a particular case can be transferred to a similar situation and it is the reader who determines' what could be applied to their context. According to Parahoo (2006) the suggested methods are also transferable to other settings.



2.2.2 Rationale for choosing grounded theory

Patton (1990; 2002) defined the originally developed grounded theory by Glaser and Strauss (1965; 1967) as a methodology for inductively generating theory. Glaser (1992, p.16) also defined it as: 'a general methodology of analysis linked with the data collection that uses systematic applied methods to generate an inductive theory about a substantive area'. Although Strauss and Corbin's (1990; 1998, p.23) definition of grounded theory seems to echo that of Glaser's above, they suggest that 'the theory is inductively derived from the analysis and study of, and reflection on, the phenomena under scrutiny'. Graham Gibbs (2010), however, stated that grounded theory is not a method as such, it is a way of discovering grounded theory.

Grounded theory originated from two sociologists from two different backgrounds, namely Barney Glaser, a positivist, and Anselm Strauss, a pragmatist in the mid-1960s (Glaser and Strauss, 1967; Legewie and Schervier-Legewie, 2004; Lingard *et al.*, 2008). During the 1960s, theory development was essential before any collection of data, however, Glaser and Strauss argued for an alternative approach to research (Glaser and Strauss, 1999; Strauss and Corbin, 1994; Robert Wood Johnson Foundation-RWJF, 2008). Glaser's focus was on codifying qualitative methods and inductive theory generation, using systematic processes in the coding and testing hypotheses generated in the research process. He was influenced by his adviser Robert Merton (Glaser and Strauss, 1999; Karl and Manteuffel, 2011). As a pragmatist, Strauss contributed to the original grounded theory which was developed in 1965, by expressing the importance of the researcher going out into the field to facilitate understanding of what is going on, and the development of a discipline through theory grounded in reality (Legewie and Schervier-Legewie, 2004; Karl and Manteuffel, 2011).

Unfortunately, dichotomy between the two originators of grounded theory became apparent (Age, 2011; Evans, 2013) and apart from the classic grounded theory (Glaserian) which is based on the original one (Glaser and Strauss, 1965; 1967; Glaser 1978; 1992), different grounded theory approaches emerged from different authors including Strauss and Corbin (Straussian-1990; 1998), Charmaz (constructivist-2000; 2006) and Wuest (feminist-1995). Although the authors tend to adopt Glaser's definition of grounded theory, there seem to be differences in the data collection approach and rigour, and in how the data is handled and analysed (Tan, 2008; Evans, 2013). However, Glaser (2010b) advocates that there is only one type of grounded theory, the Glasarian, irrespective of what other authors say as they tend to use different jargon to come to the same point.

2.2.3 Classic (Glasarian) grounded theory

The properties of the Glasarian grounded theory include the need for the theory to:



1. 'Closely fit the substantive area in which it will be used
2. Be readily understandable by laymen concerned with this area
3. Be general enough to apply to a multitude of diverse daily situations
4. Allow user partial control over the structure and process of daily situation as they change through time' (Glaser, 1967; 1999, p.237)

In Glaserian grounded theory, substantive coding is used by separating (fracturing) and analysing the data, through open coding for the emergence of a core category, and related concepts (1978; 1992; 1999). Theoretical sampling and selective coding are then used to facilitate theoretical saturation of the core categories and their related concepts, using the constant comparative method (Glaser, 1978; 1992; 1999; Stern and Porr, 2011). During the above processes Glaser (2011) suggests the need to keep theoretical memos to capture the meaning of ideas at the moment they occur and together with any field notes. This helps to avoid distraction while focusing on what is really happening, with resultant coding on a higher conceptual level (Glaser, 2011). The importance of allowing theory to emerge from the data instead of employing specific preset categories is also emphasised (Glaser, 1992; Bugday, 2012).

2.2.4 Rationale for choosing the classic (Glaserian) grounded theory

As mentioned already in section 2.2, a combination of factors tends to shape the choices made in relation to methodology and methods to be employed for this study. Grounded theory is said to be useful when little is known or a new perspective on a studied phenomenon is needed (Glaser, 1992; Jackson and Verberg, 2007), and helpful when available theories about a phenomenon are inadequate or non-existent (Creswell, 2008). There were, for instance, some literature on the topic selected for study in the nursing field in relation to clinical practice (Morris and Turnbull, 2006; McCandless, Sander-Mann and Wharrad, 2006; White, 2007; Crouch, 2008; 2008a; Hargreaves *et al.*, 2009; Child and Langford, 2011) although not necessarily on coping strategies developed by the students and their experiences of same. With reference to midwifery practice, the only research literature on the perceived impact of dyslexia on the student midwife's practice was that conducted by Crouch at the time of this research. Research on the coping strategies students with dyslexia develop and use was also almost non-existent. Therefore, apart from the embedded case study approach, the grounded theory method was used and the findings that emerged could help develop future research questions as envisaged by grounded theory. Choosing grounded theory approach, therefore, meant a pragmatic approach was exercised to some extent as it seemed fit for the purpose of the research (Robson, 2011; Christiansen, 2007; Evans 2013; Denzin and Lincoln, 2013).

Charmaz (2000) argued that grounded theory is based on positivists' philosophical paradigm since Glaser (1967) came from a positivist background. There is, however,



argument also for its pragmatist characteristics (Age; 2011). It was also noted that theory development was essential before any collection of data in the 1960s, however, Glaser and Strauss argued for an alternative approach to research (Glaser and Strauss, 1999; Strauss and Corbin, 1994). The philosophical roots of Glasarian (1967;1978) grounded theory, therefore, seems to be that of post-positivism (critical realism) ontologically (Annels, 1996) although this was rejected by Corbin and Strauss (2008) who preferred to be referred to as constructivist (Denzin, 2013; Devadas, Silong and Ismail, 2011). The latter was confirmed by Charmaz (2000), who referred to the 'construction of codes, categories, as well as of theory instead of discovery of theory as advocated by Glaser (1978; 1992). Charmaz (2000; 2006) 'located grounded theory methods within the constructionist theory, developing the constructed nature of all knowledge claims as arising out of relationships, so meaning it resides not only in people or texts, but between them' (Ellingson, 2013; p.421). Strauss and Corbin's (1990) work and that of Charmaz (2000), also seemed to have shaped grounded theory as 'relativist ontologically, and subjectivist, epistemologically' (Devadas, Silong and Ismail, 2011, p.322). Moreover, those authors noted the interactive nature between the researcher and the participants in grounded theory's methodology, and which places their approach under constructivist paradigm of enquiry (Devadas, Silong and Ismail, 2011) which is consistent with ones chosen interpretive ontological paradigm. According to Ellingson (2013, p.421) 'intimate familiarity' with data is achieved by middle ground researchers by rereading them several 'times, and making notes on emergent trends' to generate and construct themes or patterns relating to aspects of the culture. This is consistent with a constant comparison method described by Glaser and Strauss (1967; 1999; Stern and Porr, 2011).

One has also had experience working with students with dyslexia and so it was important to avoid researcher bias (Robson, 2011). The need to avoid any preconceptions prior to the study was, therefore, important so grounded theory was chosen since it helped to address this. According to Glaser (1992), since grounded theory is an inductive approach with the intention of discovering theory, there should be no preconceptions at the start of the study and this is echoed by Graham Gibbs (2010). Glaser (2010-video) argued that 'doing a literature review before conducting a grounded theory is a waste of time'. Glaser's (1978; 1992) intentions are to avoid forcing the data by allowing the data to drive the research and for the theory to emerge. It could also be argued that avoiding any preconceptions could help reduce threats to the study's trustworthiness (Robson, 2011). However, Thomas and James (2006) argue that it is not possible to avoid preconceptions about data collection and analysis in the way Glaser advocates. Strauss and Corbin (1990; 1998) also used literature in the early part of the research to help develop theoretical sensitivity and generate theory (Heath and Cowley, 2004; Evans, 2013). However, Glaser (2010) advised



that any literature review should be done after the study so that it can be integrated into the current literature of a field, a view that was also echoed by the Walden University Research Centre (Walden University ND). According to Glaser, if one has to do a literature review, 'one could do one that has nothing to do with what one is studying' (Glaser, 2010). The literature review for Chapter one of this paper, therefore, is a general overview on the background and rationale for the chosen topic for the study, some of which were compared with current literature in nursing and midwifery fields and other healthcare professions as advocated by Glaser (2010) during analysis and/or discussion of the findings.

As expressed by Christiansen (2007, p.41), the classic (Glasarian) grounded theory is a methodology for generating a 'theory directly from data that explains as much as possible the behaviour patterns of' the research participants, with as few concepts as possible'. Bugday (2012) suggested the use of grounded theory when a broad theory or an explanation of a process is needed. Since detailed information was required to allow inductive generation of theory, grounded theory was also useful for exploration and disciplined development of new ideas, the outcomes of which are grounded in the data (Muller, 2012-slides 8 and 11).

Having looked at the different viewpoints made by the different authors, a decision to choose the Glasarian (1967; 1978; 1992) grounded theory also partially rested on its familiarity as one had used the grounded theory approach for previous studies although it was not always fully understood. It is believed that the misunderstandings were probably generated by the varied literature on the subject with changes made to the original by different people all of whom claimed to have used grounded theory though they did not always state what type of grounded theory they are using (Evans, 2013).

2.3 Research methods

In order to answer the set questions, data were collected from different sources (Burns and Groves, 2006; Cohen, Manion and Morrison, 2011). These encompassed a purposive sample of nursing and midwifery students with dyslexia, files and practice portfolio of the students and from mentors (Table 2e). Varied methods including one-to-one, face-to-face, tape-recorded semi-structured interviews, and questionnaires as shown in Table 2e were also employed to collect data (Bryman, 2012).

2.3.1 Sample

Glaser and Strauss (2008) recommend the use of a sample of 20-30 to allow saturation. In this research, therefore, it was intended to recruit up to 20 nursing and midwifery students with dyslexia. However, only 17 of such students showed interest and consented to take part. Unfortunately, five of them did not follow up with their commitment. It was important to



choose participants who could produce 'data that were conceptualisable' and who could contribute to the generation of theory (Stern and Porr, 2011, p.51; Glaser and Strauss, 2008). For the purpose of this study, therefore, data were collected from a purposive sample of the 12 participants, seven of whom were nursing students and five midwifery students who have dyslexia, and their profiles (x 12), to help address all the research questions. Data from eight of their practice portfolios (written by 27 different mentors) also helped to address questions 1 and 3 (Table 2f). Additionally, evaluative comments from a purposive sample of 22 mentors were also used to address question 3ii (Table 2e) in this research

Table 2e: Overview of the research questions, methods of data collection and analysis for each

Question addressed	Methods of data collection and analyses used
1.What is the perceived impact of dyslexia on the nursing and midwifery student when in clinical practice?	<ul style="list-style-type: none"> • Face-to-face tape-recorded semi-structured interview of students with dyslexia (constant comparative method of analysis) + file and practice portfolio
2.How any difficulties associated with dyslexia are managed by the nursing or midwifery students themselves?	<ul style="list-style-type: none"> • Face-to-face tape-recorded semi-structured Interview students with dyslexia – (constant comparative method of analysis)
3i What strategies can help nursing and midwifery students with dyslexia in clinical practice?	<ul style="list-style-type: none"> a) Face-to-face tape-recorded semi-structured interview (constant comparative method of analysis) b) Checked through students' profile and practice portfolios of students with dyslexia (content analysis; then constantly compared with data from interview)
3ii What are students' and mentors' perceptions on the poster guidelines used by mentors to support nursing and midwifery students with dyslexia in clinical practice?	<ul style="list-style-type: none"> a) Face-to-face tape-recorded semi-structured interview with the students (constant comparative method of analysis) b) Check through the practice portfolios of the students with dyslexia (content analysis; then constantly compared with data from interview) c) Mentor evaluation of tool kit used in practice for school of health nursing and midwifery (students with dyslexia – link to questionnaire on the University's virtual learning platform (content analysis of qualitative data then constantly compared with other data)

Of the 12 nursing and midwifery students who took part, four of them were based at Site A (MK), another four at Site B (N), and the rest from Site C (K) (See Table 2f). Three of the seven nursing students were studying in the Adult nursing field, three from learning disability field of nursing and one from mental health nursing field (Table 2f). No nursing students from children's nursing field took part in the study although they were given opportunity to do so.

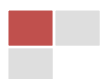


Table 2f: Overview of student participants and the sites of their placements

Site	No of students from site	Midwifery students	Nursing students	Adult nursing field	Learning Disability field	Mental Health field
Site A	4	3	1	0	0	1
Site B	4	0	4	3	1	0
Site C	4	2	2	0	2	0
Total	12	5	7	3	3	1

According to Cohen, Manion and Morrison (2011), purposive sampling means the researcher decides which cases are to be included in the study, based on the judgement of 'their typicality or possession of the particular characteristics being sought to help build the sample that is satisfactory to their needs' (2011, p.156). In other words, the selection of participants is based on the knowledge of the population and the aims of the study (Burns and Grove, 2006; Babbie, 2011). The participants should have first-hand experience of the research topic (Pearson Education Canada, 2007; slide 11). This allows the production of data that could 'be conceptualized and' help 'formulate a theory' (Glaser and Strauss, 2008, p.46). It was therefore necessary to set criteria as to who could participate in the study and in this case, one of the main criteria for participation in the study was that the student nurse or student midwife must have been formally diagnosed as having dyslexia. In order to help build a sample appropriate for the proposed study, some inclusion and exclusion criteria were set (see figure 2a) prior to recruiting the participants.

<p><i>Inclusion criteria (students):</i></p> <p><input type="checkbox"/> Student nurse or midwife who had been formally diagnosed with dyslexia</p> <p><input type="checkbox"/> Had been on the course for at least 6 months</p> <p><input type="checkbox"/> Had formally disclosed of disability</p> <p><i>Inclusion criteria (staff):</i></p> <p><input type="checkbox"/> Mentors who were mentoring at the time of the study or had mentored a student nurse or midwife with dyslexia from the university within the last 3 years.</p>	<p><i>Exclusion criteria (students)</i></p> <p><input type="checkbox"/> Had not been officially diagnosed with dyslexia</p> <p><input type="checkbox"/> Had not formally disclosed of disability</p> <p><input type="checkbox"/> Officially diagnosed with and has disclosed of dyslexia but has been on the course for less than six months</p>
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Figure 2a: Overview of inclusion and exclusion criteria

Apart from the student participants, it was important for mentors to have had firsthand experience of mentoring a student or students with dyslexia before taking part in the study. Inclusion criteria that reflected this for mentors who wished to participate were therefore also set (Figure 2a). Discussion of the procedures carried out to recruit the nursing and midwifery students, followed by how the mentors were recruited is given in the next section.



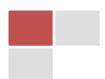
2.3.2 Recruitment of nursing and midwifery students as participants

Having obtained written approval from the appropriate research ethics committees, research degrees board, managers, and verbal permission from other gatekeepers (Neuman, 2011) such as module leaders and lecturers, recruitment posters were prepared. These were then placed on the communication boards in the appropriate buildings within the school of health at the university to make it visible to the students. The same information was also placed on the university virtual learning platform (UVLP) for each cohort.

After making arrangement with course leaders and lecturers, one went into classrooms either at the start or end of the classes to give information about the research, orally and in writing to all the students that were scheduled to be on campus (Appendix 2C, Table 2g, p.277). The prepared and approved participants information sheets and consent forms (Appendices 2A p.274 and 2B, p.276) were used during this process. A diary of all activities related to the research was then kept (Appendix 2C-Table 2g, p.277).

After introducing oneself and the aims of the visit, it was explained that one did not know who had dyslexia and/or who met the criteria to participate, nevertheless, confidentiality needed to be maintained. It was therefore necessary to give the information to everyone in the classes to protect the identity of individuals with dyslexia and those who wished to participate in the study. In order to maintain confidentiality, they were also advised to not openly express their wish to participate and that individuals who met the criteria to participate (Figure 2a, p.55) and wished to do so, should make contact at a later date. Each student was also given a self-addressed envelope to allow those who wished to take part to complete their consent forms and to place them in the internal post. Those who did not wish to participate were to return the information sheet and consent form via internal post if they so wished. In line with the university's guidelines and those of BERA (2011) for conducting research, participants were informed of their rights to be able to withdraw from the study at any time if they so wished (Appendix 2A, p.274). No incentives were given (Appendix 2J, Table 2m, p.313).

They all had a choice of asking any questions they may have had about the research and were also informed that they may wish to do so upon contacting me later on instead. This was also to allow individuals, who met the criteria for recruitment, the time to read the information again in their own time before asking any questions they may have had prior to considering taking part in the study, whilst protecting the identity of potential participants and maintaining confidentiality.



Once a potential participant made contact either by post, telephone or email, to express interest and gave consent to participate in the study, we agreed on a date, time and possible venue for the interview. The participant then had a choice of sending in the signed consent form or bringing it in on the day of interview. Once a room was booked, the participant was informed of the venue and upon meeting, a one-to-one face-to-face semi-structured interview lasting 50-60 minutes was conducted, using open-ended questions to help answer all the research questions (Table 2e, p.54).

All the above procedures were repeated for each cohort of nursing and midwifery students scheduled to be on site for lessons and included both pre-and post-registration nursing and midwifery students (Appendix 2C, Table 2g, p.277). This allowed a self-selected purposive sample, that is, individuals who met the inclusion criteria for participation (Figure 2a, p.55), to participate in the study (Cohen, Manion and Morrison, 2011),

Some of the participants submitted copies of their mentors' comments in their practice portfolios during the face-to-face digitally recorded semi-structured interviews, and, with their permission, information from the file of each of them was also accessed for content analysis of information relevant to the study. During that process, one was also able to access copies of mentors' comments from their practice portfolios and which had already been filed for analysis.

2.3.3 Recruitment and data collection from mentors (qualified staff)

The recruitment of mentors who met the set criteria (Figure 2a, p.55) was necessary to help answer research question 3ii (Table 2e, p.54). In order to recruit the mentors, information about the need for the evaluation of the poster guidelines (Crouch, 2010a) used for supporting students with dyslexia was also placed on the UVLP and mentors were invited to complete a survey questionnaire as agreed. A link to access a copy of the said poster guidelines (Appendix 2H, p.288) and another link to access the questions were provided as shown in the screen shot below. However, the use of this method to recruit mentors proved very difficult as they hardly accessed the UVLP which meant only 6 mentors accessed the link and completed the questionnaire initially. Supervisors were therefore made aware of this, following which some discussion regarding same with the associate Dean for research in the school of health took place to see how best to move forward. Efforts to meet with another manager to discuss this further as advised was not successful. However, upon speaking to other gatekeepers, they suggested one should place information in the mentors' update or training pack to raise awareness although this would have meant the need to again seek permission from a particular manager who unfortunately was not available. That idea was therefore abandoned.



However, an invitation was received to present one's research to two separate cohorts of post-registration nursing and midwifery students undertaking a research methods course at the university as part of their teaching and learning session (Appendix 2C, Table 2g, p.277; Dec 2013 and Dec 2014), by their module leader. Many of those post-registration students were also mentors of student nurses and student midwives in the clinical areas. This raised their awareness of this research and upon completion of the presentation to the first cohort, one of them accessed and completed the evaluation questionnaire on the UVLP. There was also some evaluative feedback on the poster guidelines to the researcher by email. At a later date, another opportunity arose to present ones' research with the next cohort of post-registration nursing and midwifery students undertaking a research methods course on campus. This cohort, many of whom were also mentors of nursing and midwifery students, showed a lot of interest in the study and upon invitation, some of them willingly completed the evaluative questionnaire on the said poster guidelines (Appendix 2H, p.288) after the presentation. This helped to increase the sample size to 22 for the mentors.

2.3.4 Rationale for data collection methods: data triangulation

According to Bugday (2012), data collected for grounded theory research is not limited to semi-structured interviews and observation only and could be in other forms such as field notes, documents, historical records and video tapes. This, coupled with the versatility of the embedded case study approach, also offers the potential to use different methods of data collection. This is known as triangulation of methods (Robson, 2011; Yin, 2008; Table 2c column 4). Robson (2004; 2011) also advocates that qualitative research considers that the researcher's task is to understand the multiple social constructions of meaning and knowledge, and one of data collection method employed by the researcher is the use of interviews, apart from observation, to allow them to acquire many perspectives. In this study, however, observation of the participants by the researcher did not take place. Howbeit, this was compensated by the mentors' comments stated in the participants' practice portfolios, since those mentors worked alongside and had observed the students in practice, some of which helped to validate comments made by the participants. These, coupled with comments from their files (written by staff) should, therefore, enhance the credibility of the research (Patton, 2002; Parahoo, 2006).

2.3.5 Use of semi-structured interviews

Gillham advocates that choosing the method for collecting data such as the use of interviews should be based on 'fitness for purpose' (Gillham, 2005; p.5). Apart from that, the use of interviews is said to promote interaction between the interviewer and the interviewee whilst it allows the interviewer to explore the topic under study in-depth where open-ended questions are used (Stringer, 2004; Cohen, Manion and Morrison, 2011), hence the data collected is rich. Therefore, the use of semi-structured interviews was



employed to help answer all the research questions (Table 2e), as apart from allowing one to explore the topic of study in some depth by the use of techniques such as probes and the establishing of rapport (Gillham, 2005; Jong and Jung, 2015), one was also able to expand on responses given by the participants.

The interviews involved one-to-one, face-to-face, digital audio-taped semi-structured interviews (lasting 45-60 minutes with the student nurses or midwives), and the use of mainly open-ended questions to address all the research questions (Sec 1.10.2; Table, 2e). As suggested by Yin (2008), there was a guided conversation rather than structured queries which required following one's own line of enquiry, whilst asking the conversational open-ended questions in a friendly, non-threatening and unbiased way. This is said to help reduce respondent biases whilst enhancing the trustworthiness of the research (Robson, 2011). It was also important to avoid or minimise interviewer effect, which meant the need to avoid influencing the course of the direction of the interview (Jong and Jung, 2015). This required some control in the management of the interview and great skill was needed in doing so as advocated by Gillham (2005), which in turn required very good planning. Semi-structured open-ended questions based on the funnelling approach, (Cohen, Manion and Morrison, 2011; Burnard, 2005) were, therefore, prepared (Appendices 2D and 2E, p.278-282) and designed in a way to avoid biasing responses from participants (Burns and Groves, 2006) to help reduce any threats to validity (Robson, 2011). The set opened ended questions (Appendices 2D and 2E, p.278-282) were also based on the students' tasks analyses (Appendices 1B p.268-9, and 1C, p.271-2) to allow exploration of the perceived impact of dyslexia on all aspects of care provision.

Active listening skills including minimal prompts such as ok, uh ha, hmm, good, right, were also used throughout to show that one was interested in what they had to say and to encourage the participants to talk (Crouch, 2005; Egan, 2013). Other prompts and probes such as the repeat of a word or phrase stated by the participants and which one wanted the participant to expand on were also used to encourage the participants to talk freely (Stringer, 2004; Robson, 2011; Egan 2013).

Paraphrasing and summarising were also used to check for one's hearing and understanding of what had been said (Crouch, 2005; McCabe and Timmins, 2006; Cohen, Manion and Morrison, 2011; Egan, 2013) and to help move the interview (conversation) forward. The use of paraphrasing and/or summarising also allowed the interviewee to clarify and/or correct the interviewer on points made where necessary. All the suggested skills were applied to all questions and answers (Appendices 2D and 2E, p.278-282).

On the whole, the structure of the questions used (Appendices 2D and 2E, p.278-282). gave opportunity to discuss some of the points made in-depth and each interview felt like a



conversation as envisaged rather than a formal question and answer situation (Hancock, 2000; Yin, 2008), 'with the common goal of making sense of the participants' experience (Burns and Grove, 2006, p.78). This method of data collection is typical of constructivist as one aimed to record data that will enable one 'to reflect on subjective meaning and interpretations' and 'the nature of individual experiences' (Broom and Willis, 2007, p.25).

Another reason for recording and transcribing the data was to enhance the validity of the information. It was, however, another time-consuming process and costly due to hours (that was about 2½ hours per 30 minutes recorded interview) spent in transcribing. To enhance confirmability (Parahoo, 2006), a copy of the transcript was also given to the participant (although this was optional) to check through for accuracy.

2.3.6 Rationale for the use of questionnaire

For the mentors, however, a questionnaire with use of open-ended questions (Table 2e, p.54; Appendix 2F, p.286) was used to help to evaluate the usefulness of the tool kit in use for supporting students, who have dyslexia, in clinical practice (Appendix 2H, p.288). The questionnaire started with an explanation for the need for an evaluation of the said poster guidelines followed by a couple of closed questions to obtain essential data (to ensure that inclusion criteria was met) prior to the introduction of a couple of open questions (Appendix 2F, p.286).

The questionnaire was chosen and placed on the UVLP as this was thought to be a cheaper and faster route to reach out to mentors (Mathers, Fox and Hunn, 2000) of student nurses and student midwives across three different sites (A, B and C - Table 2f). There was, however, no guarantee that the mentors would access the UVLP if they were not on updating courses and this proved to be the case (Sec 2.3.2). The questionnaire also served as another source of evidence (Robson, 2011). In any research, there is possibility of respondent biases (Robson, 2011). The use of data triangulation (multiple sources of evidence), therefore, was to 'provide multiple measures of the same phenomena,' hence help to reduce potential threats to 'construct validity' (Yin, 2008, p.116). The multiple sources of evidence by perspectives, methodological and data triangulation that were used, were also to help address concurrent validity, which relates to the extent to which the results of a particular test or measurement correspond to those of a previously established measurement for the same construct (Cohen, Manion and Morrison, 2011). However, when data from the different sources differ from each other, practical difficulties could occur as this would mean comparison would be difficult, so this was borne in mind (Robson, 2011).



2.3.7 Data analysis methods and rationale for choice

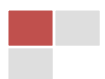
The constant comparative method (Glaser and Strauss, 1999; 2008) was used to analyse the transcribed data collected from the taped interviews (Table 2h; Table 2j; Table 2k). This involved the generation of themes through substantive-open Table 2h) and selective, and then theoretical coding (Table 2h; Table 2j; Table 2k; Stern and Porr, 2011).

2.3.7i Substantive Coding: Open Coding

According to Stern and Porr (2011) substantive coding involves both open and selective coding processes. For this study, open coding involved firstly arranging the data into segments (Stern and Porr, 2011) as shown in Table 2h. As outlined by Glaser and Strauss (2008), the basic rules of the process of constant comparison were then followed, in that one began analysis by coding each incident in the data into as many categories as possible, as categories emerged.

Table 2h: Substantive coding -example taking from aspects of a real transcript

Transcript / process: Data arranged into segments and codes in next column, using colour to help identify similar codes	Open coding:- Codes assigned
<p>R.41 OK. That's interesting. We are moving from antenatal to the labour room. You are looking after a woman in labour, either in the labour ward or at home, what has that been like for you?</p> <p>DSM2.41 <i>Very much like the booking, it's never been a problem. Because its very practical being a Midwife, practically I cope really well. It's again the paperwork, the writing down, and getting things spelt right. Anaesthetist is the biggest word I spell wrong. I still can't spell anaesthetist even now. Of course, there are more Doctors on labour ward and you need to be very quick at telling them the patient's history especially in an emergency. And writing things down very quickly in an emergency, and that I don't do very well. That I leave to my mentor just because my handwriting becomes very, although you can read it, you can't really tell what is going on. My words are all mixed up, my spelling is wrong and I think it's more the stress; it makes my dyslexia worse almost. In a normal setting, I can write absolutely fine but as soon as the pressure is put on I almost go blank</i></p> <p>R.42 Right</p> <p>DSM2.42 But I can tell you what's happening, I can verbally say it all, I can get it all across that way but I can't get it on paper</p> <p>R.43 So what I'm hearing is that the actual care is fine. I picked on about three or four key issues. The stress of perhaps in an emergency</p> <p>DSM2.43 Yeah</p> <p>R.44 And then there's spelling issues. So when you get your words mixed up, can you elaborate a little bit on that?</p> <p>DSM2.44 Yeah so say if I had to write down 'Doctor into the room', I would just put 'in room' and that could mean anything. I miss words out</p> <p>R.45 So you miss some words</p> <p>DSM2.45 Yeah, so I know that Doctor came in the room but anyone else who read that, they wouldn't know and that's my stress that I could verbally tell the person what time the Doctor came in and why they were in the room, not a problem, but if I'm trying to write it down very quickly with everything going on around me it's a case of I understand it but no-one else does</p>	<p>Strength <i>Labour room-never been a problem.. it's very practical being a midwife..</i> practically, I cope very well</p> <p>Documenting is challenging the writing down I spell wrong. In emergency</p> <p>Mix up words My spelling is wrong Its more the stress Fine in normal setting.. but soon as pressure is put on I almost go blank</p> <p>Strength But I can tell you what's happening, I can verbally say it all,</p> <p>Documenting is challenging/Miss out words/Safety Issue ..say if I had to write down Doctor into the room' I would just put 'in room' and that could mean anything. I miss out words</p> <p>Strength Good verbally Documenting is challenging if I have to write it down very quickly</p>



'While coding an incident for a category, it was compared with the previous incidents in the same and different groups coded in the same category' (1999; 2008, p.105-106), with use of colour to assist the process (Table 2h, p.61; Appendix 2i, Table 2i, p.289). The use of different colours in the open coding process to highlight coded data, different coloured font, italics and or underlining of words or phrases, helped with easy identification of data with similar codes within the transcripts (Table 2h, p.61). This process also helped with the constant comparison and the selective coding processes.

2.3.7ii Substantive coding: Selective coding

Selective coding involved the identification 'of the recurring problem, issue or concern' (Stern and Porr, 2011, p.62). A matrix with the different colour codes, was prepared during this process. Green, for instance, was used to code 'documenting is challenging' (Table 2j). Yellow was used to identify coding related to spelling, grammar and sentence structure, and red for coding related to mixed up words, all of which were aspects of and belonged to the category documenting is challenging. The colours and or other methods used to help identify coded data such as underlining, or different coloured font, used in the matrix were identical to those used during the open coding process as shown in Table 2h. These are just examples as many colours were used and the process was exhaustive (see Appendix 2i, Table 2i, p.289).

Table 2j Substantive coding: - Selective coding to identify recurring problem and group/ constant comparison

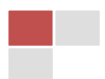
Open conceptual categories	Student midwives Initial concepts + selective coding	Student Nurses Initial concepts + selective coding
Documenting is challenging		
Documenting is challenging / Trouble with spelling, grammar and sentence structure		
Documenting is challenging / I mix up words		
Practice is strength		

Initially, only three columns were developed. During analysis of data, similarly coded data were then copied from the transcripts of the student midwives and pasted into the middle column (Table 2k, p.63). Coded data that were similar in content from the student nurses' data were also copied from the transcripts and pasted into the third column (Table 2k, p.63). Examples of what information were identified, and which related to the category 'documenting is challenging' (colour coded green), are shown in the next table (Table 2k, p.63). This yielded well over a hundred pages as the data analysis and as transfer of more data into the matrix continued, the constant comparison of the data became difficult to manage.



Table 2k Substantive coding: - Selective coding to identify recurring problem and group/ constant comparison

Open coding conceptual categories	Student midwives Initial concepts + selective coding	Student Nurses Initial concepts + selective coding
Documenting is challenging Context- A/N clinic/care for student midwives	Difficulty with writing unfamiliar words (AN Care) DSM1.8 writing unfamiliar words cause me real trouble to spell them or things that I have only heard of or talked about but have never written down DSM1.9 There is so much to be written so quickly that it is a bit of a challenge with the booking appointments that take 45 minutes or an hour DSM1.10 I don't enjoy writing in front of people ...writing all that information in front of people to begin with was a real psychological hurdle ' DSM1.11 Embarrassing so hates writing in front of people with a passion DSM1.21 ...The very first thing I ever wrote in birth notes was when it had a shoulder dystocia and the midwife threw the notes at me and just said write paediatrician and anaesthetist in the room, foetal heart auscultated. I went well there's three words in there I just can't spell already! But in an emergency what can you do, you just have to get on with it. <u>I'm sure everything was awful! And those kinds of things I look back on with real embarrassment and very self-consciously.</u> DSM1.F In group presentation, student unable to write on board	DSN1.18 ...it was a challenge DSN1.F Has processing difficulties e.g. getting thought down on paper and or expressing thought orally DSN1.F ; Has difficulty writing DSN2.13 I focus so much on writing the notes...trying to make sense of what I am writing down and not actually paying attention to what the patient is saying and I am not actually taking in the information DSN1.74 ; If it's a long piece of text it's a bit more difficult but when it's just like, it's usually bold writing. DSN1.91 DSN1.16 ; it was a little overwhelming. DSN1.24 ; DSN1.33 It's more my documentation DSN2.16 ; It was very difficult to me to actually physically listen, watch their body language and understand what it was they were saying and make notes at the same time DSN4.38 Sometimes it can be hard it depends on the pace of the person or you might need a lot more information. I suppose it depends on the situation. Sometimes it can be harder sometimes it's not as hard. I think my experience of it so far is that I've had a person there because of the safety they usually do two people. Sometimes you'll support each other. They might write notes or DSN2.52 The biggest issue, I think, if I'm writing something that I know it doesn't matter because its notes and that I can either rewrite it or that the person that's going to read it isn't going to criticise it then I relax a bit more and the process is a bit easier. Most of it is panic and worry that if I'm having to physically hand write something on the spot that I'm not able to check and make sure that it's up to standard that I panic that I'm going to be told off and it's going to become a problem DSN5.12 So I know what I want to write I know what it would be good to write. As difficult as people find to understand, I can say it exactly what I want to put on paper, but I just can't write it down. It's very difficult to explain. I can know what I want to write I just don't know how to put the words on to the bit of paper. It's extremely frustrating and things take a lot longer to get them right
Health assessment and care planning for nurses		
Amount Document type		
LW experience	DSM1.21 Paper work initially felt overwhelming, but it doesn't anymore (A/N) DSM1.26 ; There's a huge amount of forms to fill out – <u>some of them aren't relevant</u> e.g. waterlow score, VIP score... DSM1.27 ...just mounting amount of paper work. There are lots of ones like that that I find hard (LW)	
Post natal		
A/N	DSM5.114 Just the fact that it is so much writing and its generic stuff. You are writing it ten or eleven times a day (P/N) DSM5.115 And its busy DSM1.47 discharge paper work takes 1/2hr DSM5.14 Right OK I'm back in antenatal clinic so that is a different part of the paperwork now, a different environment and different clinics have different computer systems that <u>you need to get to grips with, which is quite tricky to do</u>	



Therefore, another matrix with five columns was produced to allow information from all the different sources of data collected to be presented and seen at a glance. However, this meant less space for writing in the columns. A decision was therefore made to place only the code numbers allocated to each participant in a shortened format, rather than to present all the coded quotations in the columns. With reference to the first coded unit of information in table 2k, for example, and which is as follows:

DSM1.8 *'Writing unfamiliar words writing unfamiliar words cause me real trouble to spell them or things that I have only heard of or talked about but have never written down'* (AN Care),

The code DSM1.8 means Dyslexic Student Midwife number 1, answer 8 in the transcript for that student. In that new table (2L, p.65), however, the code DSM1.8 was shortened to M1.8 (Student Midwife number 1, answer 8 in transcript). In other words, DSM1.8 = M1.8. This helped the researcher to locate the quotations (coded data) in the transcript with ease. Similarly, DSM1.9 was transferred unto the new table as M1.9 (DSM1.9= M1.9) and this was applied to all the codes for information from transcripts for both nursing and midwifery students as shown in the table 2L (p.65).

Content analysis of documents such as students' files and practice portfolios for each participant was carried out by identifying specific and relevant information (Appendix 2i, Table 2i, p.289; Robson, 2011; Brewer, 2003; Alaszewski, 2007; Yin, 2008) to help answer questions 1 and 3 (Section 1.10.2; Table 2e). The evidence for each category was placed within the matrix (Table 2L, p.65; Appendix 2i, Table 2i, p.289; Yin, 2008) following theme generation. Words and/or phrases were then colour-coded (in green font) to help with the constant comparison of the data within the grid and which were then compared with the analysed transcribed data collected to help generate further themes.

For instance, data transferred into the matrix from the students' files were information written by staff about the student and each was colour coded in blue font (Table 2L, p.65). In such cases, M1.F means file data for student midwife number one. Likewise, N1.F means file data for student nurse one and so on (see Table 2L -columns 3 and 4, p.65).

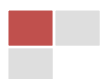
A student's portfolio data was, however, coded differently. In column 2 for example, M3.P3 mean student midwife 3, portfolio data from placement/mentor 3. Similarly M3.P4 means student midwife 3, portfolio data from placement/mentor 4 respectively (See Table 2L-lower part of column 3, p.65)

The qualitative information collected from the mentors' evaluation of the tool kit (poster guidelines—Appendix 2H, p.288) was also compared with the transcribed and other data gathered by other means, using the constant comparative method to generate themes



Table 2L Constant comparison of data

Open coding conceptual categories	Student midwives Initial concepts + selective coding	Evidence from other sources: (Student Midwives files and or portfolios)	Evidence from other sources: (Student Nurses files and/or portfolios)	Student Nurses Initial concepts + selective coding-theme from face to face interviews
Documenting is challenging McCandless F. Sanderson-Mann J. Wharrad (2006) Write info in another's /wrong info Amount/ Document type Time consuming Busy	Documenting: challenging <ul style="list-style-type: none"> M1.8; M1.9; M2.13; M2.15; M2.28; M2.45; M2.58; M2.59; M3.16; M4.21; M4.22; M5.14; M5.16; M5.18; M5.77; M5.88; M5.95; M5.110; M5.116; Psychological hurdle/ embarrassing - M1.10; M1.11; M1.12; Paper work initially felt overwhelming M1.21; (A/N) Huge amount M1.24; M1.26; M1.27; (L/W) M5.115; (P/N) I find it difficult to just be filling in form after form after form M3.16; Takes 1/2hr to complete discharge forms M1.47; When under pressure M2.41; M2.45; It's busy M5.112; M5.116; Tricky /struggle when hectic/busy M5.115; M5.95; Write more than I need to M1.28; Lack of familiarity/Difficult to understand (blood forms)/ where to put information M5.14; M5.16; M5.18; Difficult to work out days, times and different stages of labour M5.77; My dyslexia has nothing to do with whether or not I can write a paragraph or whether or not I can take notes M3.11; I don't see that my dyslexia is an issue M3.19; My record keeping is spot on M3.46; I write wrong information due to multitasking M5.110; 	In group presentation, student unable to write on board <ul style="list-style-type: none"> M1. F Prone to stress when writing a lot of information M2. F Unable to write on board. M1. F Prone to stress when writing a lot of information <ul style="list-style-type: none"> M2. F ..has gained trust respect from the team. Overall an exceptional student midwife <ul style="list-style-type: none"> M3.P3 Her record keeping is excellent M3.P4 Her record keeping is exceptionally good and her communication with staff are of high standard M3.P5 	Has difficulty writing <ul style="list-style-type: none"> N1.F; N4.F; N5.F; N6.F; N7.F Stress may have adverse effect on literacy skills, memory and on concentration <ul style="list-style-type: none"> N6.F Finds it difficult getting thoughts on paper and expressing thoughts orally... Has difficulty writing ... gets writer's cramp and has slow writing speed <ul style="list-style-type: none"> N7. F 	Documenting: challenging <ul style="list-style-type: none"> N1.18; N1.24; N1.33; N1.91; N2.52; N2.58; N3.18; N3.20; N3.28; N4.20; N4.35; N4.127; N5.9; N5.11; N5.12; N5.13; N5.14; N5.15; N5.16; N5.18; N5.19; N5.50; N6.10; N6.37; N6.45; N7.11; N7.21; N7.22; N7.23; N7.24; N7.28; N7.29; Assessment forms N6.83 Difficulty with processing N5.16; N7.16 Overwhelming/ a lot- N1.16; N4.33; N7.11; When it is a long piece of text N1.74; Time consuming to find words I want to use N7.21; N7.23; Panic that I am going to be told off/based on previous experiences N2.52; N2.53; Challenging to listen and write at the same time N2.13; N2.16; N3.107; N3.20; N3.40; N3.43; N4.30; N4.38; N5.49; N5.52; N5.53; N6.21; It depends on the pace N4.38; Lack of familiarity N6.37; Challenging in a noisy background N7.11;
Documenting is challenging / Trouble with spelling, grammar and sentence structure	Trouble with spelling; <ul style="list-style-type: none"> M1.8; M1.21; M1.77; M2.13; M2.41; M2.62; M2.62; M2.65; M2.101; M3.12; M3.40; M4.24; M4.28; M4.29; M4.30; M4.48; M5.18; M5.22; Unfamiliar words M1.8; M1.21; M3.12; M5.22; If at speed/under pressure M1.12; M2.41; M2.54; 	<ul style="list-style-type: none"> M1.F; M3.F; M2.F: but no spelling error in hand written essay 	Difficulty with spelling <ul style="list-style-type: none"> N3.F; N5.F; N6.F; N4.F; N7.F 	Trouble with spelling: <ul style="list-style-type: none"> N1.55; N2.13; N2.58; N3.26; N3.29; N3.108; N4.29; N5.24; N5.49; N5.51



(Appendix 2i, Table 2i, p.289) According to Patton (2002), Robson (2002), Yin (2008), and Cohen, Manion and Morrison, (2011), such data triangulation enhances rigour of the research as well as reduces threats to validity.

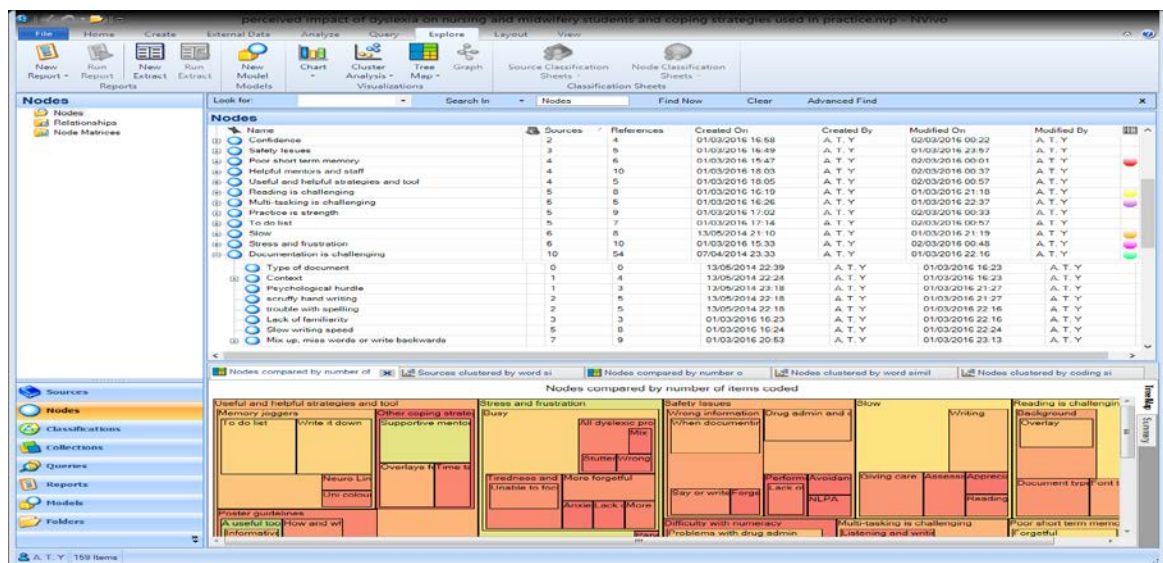
2.3.7iii Theoretical coding

This process soon generated theoretical properties of the categories and so the 'comparison of incident to incident changed to comparison of incident with properties of the category' that emerged from previous comparison of incidents which is known as integration of categories and their properties during when theory began to develop (Glaser and Strauss, 1999, p.108). This aspect of the constant comparison process is described as 'theoretical coding' (Glaser, 1978;1999). It involves theoretical sampling and the use of theoretical codes described as coding families (Stern and Porr, 2011). This considered 'the conditions under which' an identified problem such as difficulty in writing 'occurred,' for example, it's causes and context in which it occurred, its major consequences, relationships with other categories, its and other properties' (Glaser and Strauss, 2008, p106). It also involved the expansion and assembling 'of the conceptual categories into a theoretical structure' (Stern and Porr, 2011, p.70). The processes continued until theoretical saturation occurred.

2.3.7iv Use of Nvivo software

Upon the completion of the processes manually the NVivo software v10 was used (Figure 2b) to assist in organising the findings into main categories, subcategories and properties although this was initially very time-consuming.

Figure 2b: Screen shot of page showing the nodes created and some of the tree map on the NViVo 10 software



The use of the constant comparative method to analyse the units within the embedded case study should also contribute to enhancing the trustworthiness of the research by enhancing both construct validity and internal validity. This was achieved by making sure of

'agreements between different parts of the data, matching patterns of the results, and ensuring that findings and interpretations derived from the data transparently;' and by using evidence to support causal explanations (Cohen, Manion and Morrison, 2011, p.295).

Some colleagues were also asked to check through a couple of the transcripts and to generate themes to check against researcher bias and reduce threat to validity (Robson, 2004). The persons asked to do this had conducted some research before and were familiar with the analysis processes. They were also fully aware of the need to maintain confidentiality. The themes generated by the colleagues were very similar to one's own; hence this helped to enhance rigour (Parahoo, 2006).

Several themes were generated which were then placed into core (main) categories and subcategories and their properties (Glaser and Strauss, 1999; 2008; Evans, 2013). There were three core (main) categories namely 'the perceptions of the impact of dyslexia on the students' practice' (Figure 3a, I, p.72), 'strategies developed and /or used to manage perceived impact of dyslexia' (Figure 3a, II, p.72), and 'very good/helpful/useful tool and strategies' (Figure 3a, III, p.72). Apart from an overview of the themes generated, the first core category, its subcategories and properties have been presented diagrammatically, described and discussed in Chapters three. The second and the third core categories, their subcategories and properties are described and discussed in Chapters 4 and 5 respectively.

The processes involved in both data collection, transcription and analysis of the data were very time-consuming although the data collected is rich. Great skill was needed in handling the data as well as in the use of the software NVivo version 10. This meant that some stages of the research were commenced late although the whole process was completed in the required time frame (Appendix 2G, p.289). The whole process in conducting the study also required certain ethical considerations and procedures and which is the next point of discussion.

2.3.8 Ethical issues and procedures for study

According to Yin (2008, p.73) all case studies, like many other research studies, 'are about contemporary human affairs', hence the need for one to protect human subjects if high ethical standards are to be maintained. In order to achieve this, it was important to follow relevant ethical guidelines from the university research ethics boards (Appendix 2J; Table 2m, p.313), as well as from appropriate professional bodies such as the Nursing and Midwifery Council (NMC, 2015) and the British Educational Research Association (BERA, 2011). The Nursing and Midwifery Council (NMC, 2015) is the professional body that governs both nursing and midwifery education and training, registration, regulation of standards (inclusive of ethical issues related to clinical practice and research) and of the



maintenance of the register of qualified nurses and midwives. The application of the NMC, (2015) ethical guidelines was mandatory. The British Education Research Association (BERA), on the other hand, is a 'charity that exists to encourage educational research and its application for the improvement of practice and the public benefit' (BERA, 2016). Nonetheless, BERA's ethical guidelines for conducting research which aims 'to promote respect for researchers, participants, academics and professional practitioners' (BERA, 2011, page 3), were also considered and employed for this educational research. According to Gardner, the President of BERA (2011, p.3), the ethical guidelines for educational research 'are not rules and regulations' but 'tenets of best ethical practice that have' been successfully used 'in the past and which will continue to' be used in future. In order to protect the participants from any possible harm, a proposal for the study was written and risk assessment for carrying out the study was carried out (Yin, 2008; BERA, 2011, sec 20). Approval to carry out the study was also sought and gained from appropriate research ethics committees and research degrees boards, senior management and from all potential participants prior to conducting the study as per the university guidelines (Appendix 2J, p.313) and as advised by BERA (2011, Sec 34-36).

Participant information sheets and written consent forms were prepared (Appendices 2A and 2B) as part of the proposal and which were approved by the research ethics committees and research degree boards, in readiness to help gain informed written consent from potential participants of the study. The participant has a right to freedom (Cohen, Manion and Morrison, 2011; BERA, 2011) so participants were informed on the participants' information sheets and on the consent form that they could withdraw from the study at any time without giving any reasons (Appendices 2A, p.274, and 2B, p.276). How confidentiality would be maintained was also stated (Sec 2.4).

In any research, it is important to protect the privacy of participants (BERA, 2011; Section 25-26). The maintenance of confidentiality was, therefore, essential and in line with research ethics boards and the Nursing and Midwifery Council (2015) guidelines. Confidentiality and anonymity was, therefore, assured (Appendix 2J, Table 2m, p.313). This was done by the use of a combination of letters and numbers instead of real names of participants on transcripts (Appendix 2i, Table 2i, p.289). DSN1.2, for example, was used to denote student nurse (with dyslexia) number 1, answer 2 whereas DSM1.46 was used to denote student midwife (with dyslexia) number 1, answer 46 and so on within the transcripts and in the first phase of analysis. This was to help ensure that data from this research are not mistaken for other data collected previously on a similar topic and vice versa. However, N1.2 (a shortened version of DSN1.2) or M1.46, for example, (a shortened version of DSM1.46) were used during the subsequent phases of analysis and in the



writing up of findings (Chapters 3-5). The following are examples of the codes used to anonymise the data collected:

- DSN2.8 (N2.8) = student nurse 2, answer 8
- DSM4.4 (M4.4) = student midwife 4, answer 4
- N1.F = File for student nurse 1
- M1.F = File for student midwife 1
- N1.P1 = Portfolio data for student nurse 1
- M1.P1 = Portfolio data for student midwife 1
- Ment1 = Mentor 1

The data collected from the students' portfolios were mainly comments made by the student's mentors which helped to validate comments made by the students either in their own portfolios or during the face-to-face semi-structured interviews, as well as helped to generate themes through constant comparison with data collected from other sources. In relation to confidentiality, however, BERA recommends that researchers must carefully consider disclosure to appropriate authorities, where they judge that the effect of agreements they have made in relation to participants' confidentiality and anonymity, will allow the continuation of illegal behaviour which has come to light during the research (BERA, 2011, Sec 29). This is particularly so where any such illegal behaviour is likely to affect either themselves or others (BERA, 2011 Sec 29). BERA's suggestion is in line with the NMC's (2015b, Sec 5.4) mandatory requirement, to 'share information with other healthcare professionals, only when the interests of the safety of the patient' or members of the public 'override the need for confidentiality' so this was borne in mind.

Any data collected has been stored in a locked locker in line with Data Protection Act (1998-SOAS, 2007) as advised by BERA (2011, Sec 26) and will be destroyed 2 years after the completion and writing up of the thesis. Data collected is for the purpose of this research only (Appendices 2A and B). The data were transcribed, and the correct copy given to the participants who requested a copy of their transcript. A summary of the above details of how ethical procedures were carried out, is also given (Appendix 2J, Table 2m, p.313; BERA, 2011; UoN, 2012) to enhance the credibility of the research.

2.3.9 Trustworthiness of the research

In order to evaluate the research findings, one needed to consider the criteria for judging the quality of research. There seems to be a dichotomy regarding the criteria for judging research as there is on one hand some predetermined criteria for evaluating the quality of quantitative research and which is rooted in positivism. From the positivist point of view, research should be reliable and valid (Long and Johnson, 2000; Rolfe, 2006; Heale and



Twycross, 2015). However, the applicability of the terms reliability and validity to qualitative designs have been questioned and/or debated.

The term reliability, for instance, is defined as 'dependability or consistency, implying that the same thing is repeated or recurs under identical or similar conditions' (Neuman, 2011, p.208). This means that if a research is conducted under similar conditions, the findings should be replicated. Stability reliability refers to a measure that yields consistent results over time and equivalence reliability relates to the similarity of measurement within a given period of time and a higher degree of stability is said to mean a higher degree of reliability (Golafshani, 2003). Traditionally however, there is focus on standardising and analysing data collection instruments and procedures (Noble and Smith, 2015) although this does not usually apply to qualitative research. According to Neuman (2011, p.214), qualitative researchers 'do not become locked into the positivist's ideas of replication'. This is echoed by other authors including Robson (2011), Leung, (2015) and Noble and Smith (2015) and according to Leung (2015, p.326), 'the essence of reliability in qualitative research lies with consistency'. However, Noble and Smith used the term trustworthiness, and which confirmed Rolfe's (2006) idea of the lack of consensus in the use of terminology and how qualitative research should be judged. In qualitative research, consideration is given to a 'range of data from different sources and the use of multiple measurement methods' (Neuman, 2011) as in this case. In this research, for example, accuracy of data from different sources is verified in terms of form and context with constant comparison (Leung, 2015) which enhances the trustworthiness of the research.

Another aspect of the criteria for evaluating research is validity which relates to the integrity and the precision with which the findings accurately reflect the data (Noble and Smith, 2015). Ecological validity is defined as 'the extent to which research findings accurately represent the real-world settings' (Walden University, ND, p.3). Grounded theories are said to be ecologically valid in that the 'findings are close to the data from which they were generated' since they are detailed, context specific, and very closely connected to the data (Walden University, ND, p.3). This implies that this research has ecological validity.

It has, however, been suggested that focus should be on the terms trustworthiness or credibility of research located in the qualitative paradigm instead (Noble and Smith, 2015; Robson, 2011), which means the word trustworthiness is used as an alternative terminology for both 'reliability' and 'validity' by different authors. However, Leung (2015, p.325) relates to validity as 'the appropriateness of the tools, processes, and data'. This implies the appropriateness of the choice of methodology in relation to the research question, the appropriateness of the design, sampling, data collection and analysis method in relation to the chosen methodology. For this research, the appropriate tools, processes and data were chosen and rationale given for the same to enhance rigour. Neuman (2011)



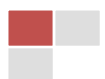
as well as Noble and Smith (2015), however, use the term truthfulness. Noble and Smith (2015) also suggest that an alternative term for validity is 'truth value' which means the recognition of the existence of multiple realities.

According to Burns and Grove (2006), in qualitative research, rigour is associated with being open, adhering scrupulously to a philosophical perspective, thoroughness in data collection, and in giving consideration for all data in the subjective theory development phase. Rose and Shevlin (2016) support this as they advocate that being transparent about the research methods used is essential in demonstrating the trustworthiness of research data. Burns and Grove (2006, p.91) also suggest that an evaluation of such research rigour 'is based in part, on the logic of emerging theory and clarity with' which light is shed on the studied experiences. This supported Noble and Smith's idea that the true value of research lies with the clear and accurate presentation of the participants' perspectives and which implies credibility or authenticity (Neuman, 2011). The findings of this study are, therefore, clearly presented in the next three chapters, using quotations from the data collected to help assist understanding, whilst enhancing the credibility of the research. The data are also rich and the methods used are transferable (Noble and Smith, 2015). It is believed that the criteria for rigour is probably achieved by being open, which involved critical reflection on one's work. Although Glasarian grounded theory (Glaser and Strauss 1967; Glaser, 1992) does not advocate reflection (Evans, 2013), some reflection is needed to enhance this so a brief reflection is provided in Chapter 7.

2.4 Summary

This chapter showed that, there are different types of research designs underpinned by different philosophical assumptions, each of which require the use of different types of research methods and techniques. This qualitative grounded theory case study, is underpinned by the constructivist interpretive ontological view. The chosen research paradigm and methods, and the rationale for their choice are discussed in some detail. In-depth exploration and understanding of the topic was gained and steps were taken to reduce threats to the trustworthiness of the research. The data generated are also rich and the methods used are transferable although the process involved was time consuming.

Several themes were generated, which were grouped under three major categories namely, 'the perceived impact of dyslexia on the students' practice', strategies used to manage the impact of dyslexia' and 'the very good, helpful/useful tool/strategies' (Figure 3a, p.72). In the next chapter, an overview of the research findings is given, following which the first core category is presented and discussed.



CHAPTER 3

RESEARCH FINDINGS I: PERCEPTIONS OF THE IMPACT OF DYSLEXIA ON THE STUDENTS' PRACTICE

3.0 Introduction

In this chapter, an overview of the three core categories generated, namely, 'the perceptions of the impact of dyslexia on the students practice' (Figure 3a I), 'strategies used to manage perceived impact of dyslexia' (Figure 3a II), and 'very good/helpful, useful tool/strategies' (Figure 3a III), is presented diagrammatically. This is followed by the presentation, description and brief discussion of the themes generated under the first core category (Figure 3a I, p.73), their sub-categories and their properties (Figures 3b-c p.73-5)

3.0.1 Core categories to which themes were assigned

As stated in Chapter 2, several themes were generated from all the data collected from the different sources all of which were grouped under three main (core) categories namely 'perceptions of the impact of dyslexia on the student', 'strategies used to manage perceived impact of dyslexia'; and 'very good, helpful, useful tool; useful strategies' (Figure 3aI-III). The themes that were generated suggest that dyslexia was perceived to have both a negative (colour-coded reddish pink) as well as positive impact (colour-coded blue) on the nursing and midwifery students practice (Figure 3a). The perceptions of the students and mentors of the strategies and resources used is colour-coded green (Figure 3a III). The perceived impact of dyslexia on the students practice seemed to have resulted in the development and/or use of strategies and/or resources to help them cope, some of which were regarded as very good, helpful or useful as reflected in Figure 3a by use of arrows.

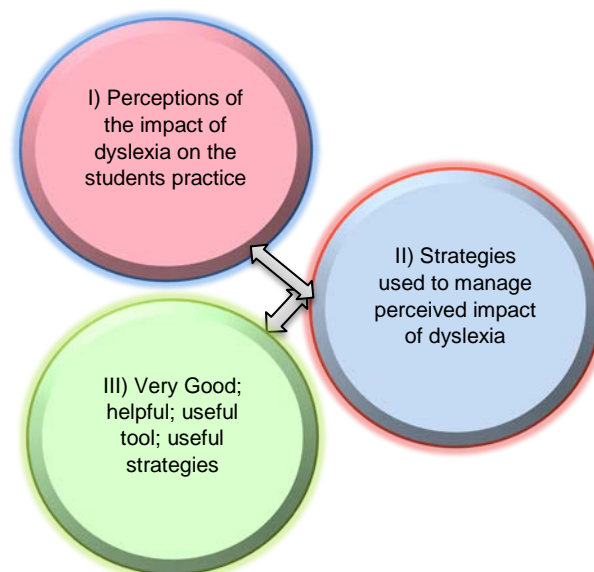


Figure 3a: Core categories to which themes were assigned



3.1 Core category I: Perceived impact of dyslexia on the student nurses and midwives' practice and sub-categories

The themes generated and grouped under the category 'the perceived impact of dyslexia on the nursing and midwifery students practice' (Figure 3a1, p.73) are shown in Figure 3b: Most of the themes generated from all the data collected from both nursing and midwifery students were very similar (see Figure 3b–circle shaped). The theme 'poor organising skills' (Figure 3b, and 3c) was generated from data collected mainly from nursing students and the theme 'labour care is challenging' (Figure 3b and 3c) was generated from the data collected from midwifery students only.

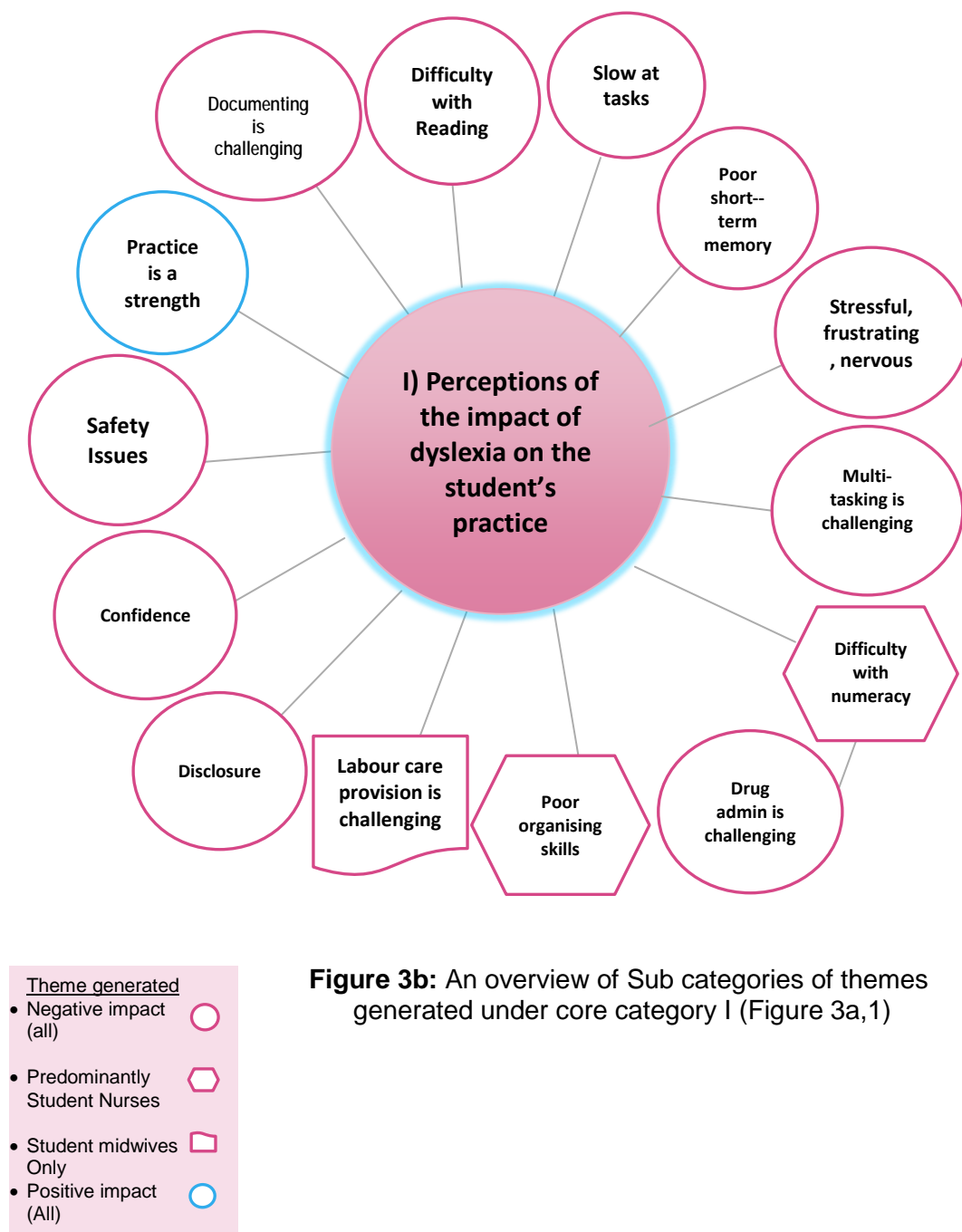
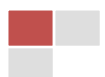


Figure 3b: An overview of Sub categories of themes generated under core category I (Figure 3a,1)



Further subcategories and/or the properties for the first core category (Figure 3a,1, p.73) were numerous and have been arranged appropriately in Figure 3c below. The students developed and or used available strategies to cope with the difficulties they encountered, examples of which are shown in blue font and blue boxes here for one theme ('poor short-term memory/forgetfulness- Section 3.5) only, due to limited space. They are also part of positive aspects of dyslexia.

Figure 3c: Core category, subcategories and their properties

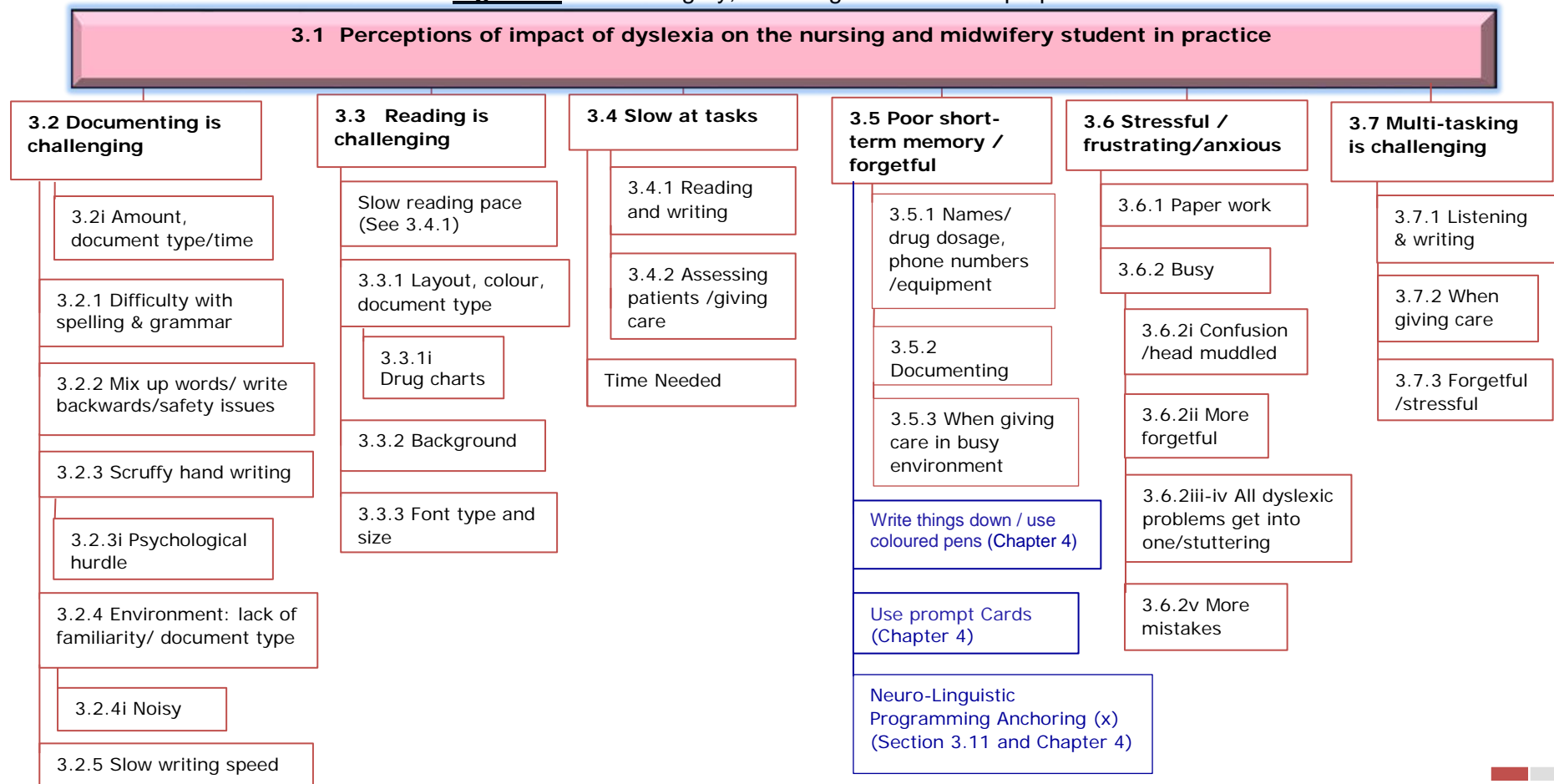
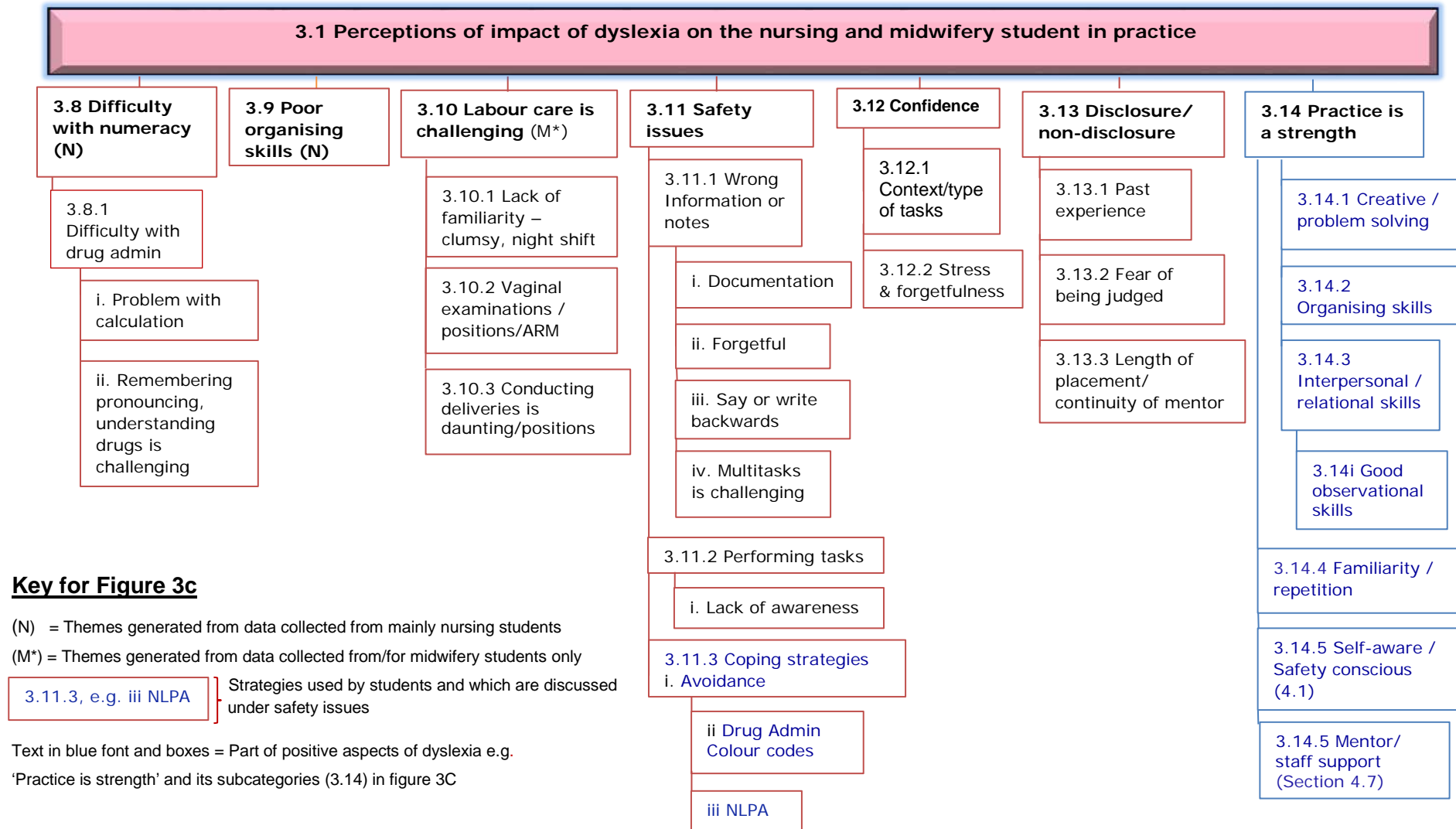


Figure 3c continued: Core category, and subcategories of themes and their properties (continued)

The nursing students (adult and mental health fields) worked mainly in hospitals and in the community healthcare settings. However, the nursing students from the learning disability fields worked mainly in the community, inclusive of school settings. The midwifery students also provided antenatal; labour as well as postnatal care in both hospital and community care settings. All the nursing and midwifery students who participated in the study reported that they had enjoyed their care experiences as reflected in the following statements:

'I really really like my time with the women' (M1.32 =student midwife 1, answer 32)

'I really enjoy it. I wouldn't dispute that. I find it quite easy talking to the women.' (M4.10).

'I quite enjoy that bit ...because it is hands-on, practical, yea' (N4.63 = student nurse 4, answer 64)

'That's why I'm here, that's what I enjoy' (N7.34)

Their comments however suggest they faced certain challenges in all the care settings. The issue that seemed to have concerned the students the most was the challenges they faced about writing so the theme 'documenting is challenging' is presented first. This is followed by other major themes, namely, difficulty with reading, slow at tasks, and poor short-term memory, which seemed to have been areas of considerable concern for both nursing and midwifery students. The description and discussion of the rest of the themes outlined in Figure 3c (p.74-75) are then given.

3.2 Documenting is challenging

Analysis of information in the students files (F) showed that the students had difficulty in writing as part of their dyslexia (M1.F - M5.F; N1.F-N7.F). How this impacted on the students record keeping processes when in practice areas appears to be what concerned them the most. Eleven of the students who participated in the study, for example, perceived it as a challenge to document information when working in the clinical areas although there was nil noted in their practice portfolios (by mentors) that suggest that any of the students had a problem with documentation when working in the clinical fields.

'...It was a challenge' (N1.18)

'Obviously dyslexia does make it a bit more challenging... I see a lot of students that go to their patients explain what they are doing and do the care plan and get it done, whereas I find myself going back and forth a lot and making notes' (N6.10)

'For me the writing is the hardest bit' (M2.59)



'In my mind I know exactly what I want to say but finding the words to articulate what I want to say is difficult' (M5.30)

3.2i Amount, document type and time

Expressions that 'there were huge amounts of forms to fill out' (M1.24) and other comments (below) made by some of the students suggest that the amount of paperwork, coupled with the length of time it takes to complete them when working under pressure, seems to exacerbate the challenges faced when completing documents:

'In an antenatal-clinic, there is so much to be written so quickly; that it is a bit of a challenge with the booking appointments that take 45 minutes or an hour' (M1.9)

'It was a little bit overwhelming' (N1.16)

'There's a huge amount of forms to fill out – some of them aren't relevant e.g. Waterlow score, VIP score...' (M1.26)

If it's a long piece of text, it's a bit more difficult...' (N1.74)

'Discharge paperwork takes ½ hr' (M1.47)

'... It's again the paperwork, the writing down... And writing things down very quickly in an emergency, and that I don't do very well. ... In a normal setting I can write absolutely fine but as soon as the pressure is put on I almost go blank' (M2.41)

The last statement also supports the findings from analysis of the students' files which suggest that some of them might be prone to stress when writing a lot of information (M1.F; M2.F) or that stress may have adverse effects on their literacy skills (N6.F). The statements made by the majority of the students above suggest that the difficulty they have in writing had some impact on their record keeping processes. However, one student was praised for her excellent record-keeping by different mentors as reflected in her portfolios:

'Her record-keeping is excellent' (M3.P3- student midwife 3, portfolio record 3)

'Her record-keeping is exceptionally good' (M3.P4- student midwife 3, portfolio record 4)

Statements from the student midwife (M3) referred to in the above statement, also suggest that apart from the 'relentless paperwork' she had no issues at all with her written work when in clinical placement and her mentors' comments supported this. She did not see it as an issue in practice and stated confidently as follows:



'My dyslexia has nothing to do with whether or not I can write a paragraph or whether or not I can take notes' (M3.11)

'When you access my portfolio, you will see for yourself I understand it's a very important part of it and it says in several of my annual appraisals that my record-keeping is spot on' (M3.46)

'What I do find a challenge is all the relentless paperwork but again I don't think that's specific to just being dyslexic. I find it difficult to just be filling in form after form after form' (M3.16)

Further comments from this student were, however, contradictory as she had indicated that she was aware of her shortcomings by expressing that she is not the world's greatest speller (3.2i below). She seems to have overcome this by constantly re-reading what she had written and making the necessary corrections. However, she did not attribute her dyslexia to any challenges she experienced with her documentation as noted in her last statement above.

3.2.1 Spelling and Grammar

Poor spelling and grammar are also known to be some of the key characteristics of dyslexia and seemed to have impacted on the ability of 10 of the students to write effectively as this meant some of them had difficulty constructing sentences. The pace at which the student had to write also seems to have exacerbated the process as reflected in the following statements:

'Sometimes the spelling can be quite tricky' (N2.13)

'I struggle with sentence structure' (M5.29)

'Yeah, I suppose I don't use grammar very well' (M4.26)

'For me I struggle with grammar, spelling isn't too bad' (N1.24)

'Spelling is very bad; if I write at speed, it gets worse' (M1.12)

'I am not the world's greatest speller... paediatrician – hate the word! Things like that, there are lots of words. Anaesthetics – can't even hardly say the word' (M3.12)

Expressions by M3.12 above and an expression like 'anaesthetist is the biggest word I spell wrong, I still can't spell anaesthetist even now' (M2.41), also suggest that certain words proved more challenging to spell than others. Other comments indicate that some spelling errors were made with regards to names of drugs although the students were quick to notice same and to make the necessary changes:



'...The number of times I've changed a wrist band on a lady because I've put an allergy band on with Penicillin or codeine spelt wrong and you just look at it and it's just so embarrassing' (M1.12)

The poor sentence structure sometimes also meant 'no one else would understand the' student's written message. The written message might also be misinterpreted as expressed in the following statement:

'Normally no one else will understand the message... because I've written gibberish' (N5.50-51)

'Say in my mind I could see that they like comfortable clothes, the patient may like comfy clothes and joggers and things like that. I would probably write something that might come across as I'm saying that they don't like to dress up, if you see what I mean. ...I'd write it so it is interpreted wrong' (N5.20-21)

3.2.2 Miss out words, mix up letters or words or numbers

Having problems with spelling and grammar, hence, with sentence structure when they had to keep records in the healthcare and school settings also meant that the students sometimes missed some of their letters or words out, or mixed up their letters and/or words (by four midwifery and three nursing students) and/or numbers (two nursing students). In some cases, this meant lack of logical sequence, or writing backwards as reflected in the statements below:

'I do get my words mixed up sometimes in my sentences' (M2.28)

'I've put an 'l' where an 'e' should be or the other way round' (M1.12)

'I might say that this person needs something when they don't need something, so I might get it the wrong way round' (N4.50)

'I say 'par cark' not 'car park' (N4.51)

'When I 'm writing sometimes I do it backwards' (N1.24)

'I can be putting normal vertex delivery of a live female infant and then say vitamin K given; I have missed the third stage. Has her placenta delivered or not?' (M5.82)

Although the students were aware of their difficulties, the above points raised safety issues in relation to the Nursing and Midwifery Council's standards regarding good record keeping. This is discussed under the theme 'Safety issues' (Section 3.11) under the sub-theme 'write or read backwards -words or numbers' (see Section 3.11.1iii).



3.2.3 Scruffy handwriting

Four of the students also reported having untidy handwriting which might have been worsened due to the amount of writing they had to do, so they tried to write slowly to ensure that records were kept legibly as per NMC (2015b) requirements:

'Yeah, I think my writing has got scruffier' (M4.49)

'I tend to write quite slowly and neatly ...I could write very quickly but no one would be able to read it! (N7.16)

'I am scruffy when I write' (M1.8)

3.2.3i Psychological hurdle

Having scruffy handwriting, coupled with other challenges related to writing, caused an embarrassment for one student, so she tried to avoid writing in front of people. She described it as 'a psychological hurdle' (M1.10) and placed emphasis on her embarrassment by repeating that she finds 'it really embarrassing; really embarrassing' and 'worries that she would not be trusted and that 'they won't think' she is 'competent' (M1.12) 'so hates writing in front of people with a passion' (M1.11). This implies fear of losing her place on the course and of a future job as a nurse.

3.2.4 Environment: Lack of familiarity and document type

For some students, once they had written the same information down a few times, the challenge of writing things down eased off. However, having to write down new information in a new environment seemed to have exacerbated difficulties they faced in relation to record-keeping. This probably affected the time it took them to complete record-keeping activities, as reflected in the following comments:

'I don't find that difficult to write down, put my words on paper. No I don't. I think it is because it's the same thing that you do over and over again. When something new comes up though I do agree that sometimes...it's not my biggest challenge...but I do find it a little bit of a challenge to get my thoughts on to paper, to write exactly' (N6.37)

'I think to be honest every single placement that I start is quite stressful because they all do it differently. I have my certain way in my head, obviously I adapt it to each ward that I go to and each placement I go to because obviously it is different paperwork, but the foundation kind of stays the same especially with the care plan and initial assessments' (N3.35)

According to another student, such lack of familiarity when working under pressure in an emergency can make writing even harder for an individual with dyslexia:



'If you walk into a room and you have got a woman who is having a PPH (post-partum haemorrhage) with a 1000mls of blood and you have never dealt with that before, never had any theoretical training. It's quite a shock to the system... you are like I don't know what that is; I don't know what that means. I think even if you weren't dyslexic it's quite a traumatic experience but being dyslexic and having to write down what's going on, it's a lot harder' (M2.58)

Another example relates to a student midwife. The rotation between the community, labour and postnatal wards, for example, led to challenges with documentation, as it meant lack of familiarity with either the routine and/or the different notes and the type of documentation the student had to produce all of which seemed to have been found 'tricky to do':

'For me that's been OK. However, rotation ...obviously we are out in the community or on the labour ward and we are on the ward as well; adjusting to those different settings you just have to set your mind. Right OK I'm back in antenatal clinic so that's a different part of the paperwork now; a different environment and different clinics have different computer systems that you need to get to grips with, which is quite tricky to do' (M5.14)

The situations described above seem to support the notion that individuals are likely to face different challenges when they get employed (Ingesson, 2007) or go into practice areas as part of their education and training in nursing and/or midwifery fields.

3.2.4i A noisy environment

A noisy environment appears to have contributed to the challenges related to documentation for one of the students, who said that he 'finds it very difficult to work with other noise, such as 'background noise' (N7.11) and needs somewhere quiet to document his information at an acceptable standard (N7.12).

3.2.5 Slow writing speed

From the students' perspectives, having slow processing speed (see Section 3.4 and 3.4i) also seemed to have contributed to the challenge of documenting and which is discussed in Section 3.4

3.3 Reading is challenging

One expected all the 12 students who took part in this study to have a reading difficulty, since dyslexia is a phonological disorder. However, an analysis of information in the students' files showed that only 9 of the total number of students, namely 4 midwifery (M1.F; M2.F; M4.F; M5.F) and 5 nursing students (N1.F; N3.F- N6.F) have difficulty reading. Comments from some of them suggest that this impacted on their practice and



that the difficulty they experienced pertained both to the reading of words and to numbers in some cases:

'If you said read this little paragraph on management of the PPH (post-partum haemorrhage) I would feel myself just glaze over' (M3.29)

'Actually, reading the care plan and then going and implementing it I'd find quite difficult' (N5.35)

'Say if it was 21 milligrams I might say 12 milligrams, but they would say no it is 21 and I went yeah I meant that. So I might say it wrong but I don't see it wrong if that makes sense?' (N4.106)

The last statement by student N4 above, has implications for practice as it does raise issues of safety and which is discussed later on in Section 3.11.

Comments from students' files (M1.F; M2.F; M4.F; N1.F; N3.F; N4.F; N5.F; N6.F) and from the students also suggest that some of them read slowly and which might be due to processing difficulties (Section 3.4)

3.3.1 Lay out, colour and type of document

According to some students, the ability to read a document is also dependent 'on the layout of the page' (N2.73) and on how the information is presented and on the amount presented (M3.38) as reflected in the following statements:

'It tends to be, for me; it sounds a bit strange, the blackness of the black as well in terms of how difficult it can be to read. Sometimes when you get things that are bold and then not bold, that's very difficult to transfer from. You go from something that's nice and bold and easy and then these words just disappear' (N2.73)

'So with policies, I like it when the policy is really well spaced, not too much information squished on to a page' (M3.38)

'What I found difficult is that, even this year, is that I was in a ward and they have A3 sized observation charts - on white paper with black grids throughout the whole thing where you have to mark your respiratory rate, your heart rate and everything and you have to go along this grid to the time and mark it down and everything was moving! For me white paper with black squares is not the easiest' (N1.21)



The above comments also suggest that the spacing of the text is also important and possibly a contributory factor in reading.

3.3.1i Drugs charts

Word recognition and/or pronunciation when reading medication charts also proved challenging for some due to perhaps the lack of familiarity with the drug names, clarity of the charts, or legibility of the prescribers handwriting:

'But when it comes to medication a lot of it tends to be word recognition'
(N2.74)

'The charts were quite confusing... It's the words of the drugs. Sometimes I can't say the words. I'll try and say them and know that's not right' (N3.91)

'One of the things that I struggle with sometimes is if the doctors have written the meds card and it's completely illegible I find it quite difficult to understand and if drugs names are very similar. I know that I struggle with that so I'm quite cautious to check and I'll have the drugs card open and I'll actually have the box and be looking at the letters so that the letters match up because struggle to say the names of the drugs. I tend to look at them more of like pictures rather than words' (N5.55)

3.3.2 Background colour sheets

The background on which information was written also contributed to the difficulty in reading for five of the students so they used coloured overlays or other strategies to help them read, implying that they found it difficult to read black font over a white background:

'Certain colours like red and white backgrounds were horrific. I really struggled to keep the words in place...' (N1.41)

'For me white paper with black squares is not the easiest so I produced a coping strategy. I took in a blue plastic overlay...to help keep in place all the lines' (N1.21)

'I use quite a lot of technology for coping with workloads and heavy reading.'
(N2.47) *...it's like a bluey overlay* (N2.69) *...I do have a full A4 one but that one is just easier to carry around* (N2.71)

'In everyday work I am quite happy to use white paper, but if I'm given a preference I'll have yellow' (N7.107)

Some of the above comments imply that without the use of appropriate coloured overlay for reading, some of the words, lines and/or black diagrams appeared out of place; in other



words they moved around although this was not experienced by all the students who expressed that they had difficulty in reading. For those who needed to use coloured overlays, the type of colour chosen by individuals varied and this is further discussed in Chapter 4. There was, however, nothing noted from the mentors' comments in the students' portfolios that suggests that any of the students had problems with reading in the clinical areas.

The above challenges meant that some of the students read slowly which is discussed in Section 3.4

3.3.3 Size and type of font and colour of diagram

The type and size of the font used was important in facilitating easy reading although this was reported by only one student in this study:

'But a lot of it is to do with font and text size. I quite like Verdana because that is very easy for me to read but only when it is in a big enough font size'
(M3.37)

'Diagrams I sometimes find quite hard to read. On the whole diagrams I find very difficult to read, partly because of the lack of colour' (M3.31)

The reason for difficulty in reading black and white diagrams was not given nor explored. However, one is aware that the use of colour by some authors to differentiate different aspects of a diagram seems to make it easier to identify the parts of the diagram.

3.4 Slow at tasks

Analysis of information from all the students' files (M1.F-M5.F; N1.F-N7.F) showed that each of the participants has slow processing speed. Statements made by the students also suggest that having slow processing speed had some impact on their clinical practice.

3.4.1 Slow at reading and writing

Some of the students with dyslexia, for example, reported that they were slow at reading and understanding what was being read (Section 3.3):

'When I am reading I would say it takes me longer than most because I get so frustrated when I read and I get to the end of it and I can't tell you anything about it. So now I tend to read and I read the first two or three lines and then I think I haven't understood any of that. I then go back to the first line and whatever those first five or six words say; I have to say to myself what are they actually asking you? What is this asking you or what is this telling you' (M3.30)



'...When I do go into the room I am slower in reviewing their notes because I like to do it in quite a methodical way to get it in my head' (M3.42)

'It just takes me a little longer time I suppose than some of my colleagues' (N1.8)

'I am slow ...when I write' (M1.8)

'It might take me a little bit longer to think how I am going to phrase it' (N1.23)

'...I spend longer on my notes than I probably need to because I'm making sure that my spellings are correct. I am making sure that my words are in order and it's legible. Most of my time is spent writing my notes' (M2.65)

'It does take me longer than the average person to write my notes, in a care plan especially' (M5.74)

'I can hear everything they are saying but I just can't get it down on the paper quick enough' (N5.9)

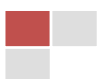
'I see a lot of students that go to their patients, explain what they are doing and do the care plan and get it done, whereas I find myself going back and forth a lot and making notes. I eventually do get there but it just takes a little bit longer...' (N6.10)

Some of the students seemed to have compared themselves with their non-dyslexic peers and some of the comments suggest that the pace at which they wrote was probably also compounded by the difficulties related to spelling and grammar. The above statements also imply that the type of document such as care plans also seemed to have added to such difficulty.

3.4.2 Slow at assessing patients and/or giving care

Apart from reading and writing, the speed at which other nursing and or midwifery tasks were performed, was also affected as reflected in the statements below:

'...If they say what posture is that I'm thinking well is the posterior, posterior to mum or posterior to me. Who's posterior! LOA and ROA, OK so it's mum's right, not my right. Just getting that into perspective took a little bit of time' (M5.69)



'Sometimes with a catheter you could show me ten times and then not do it for three or four weeks and then think where does that bit go? I could look at it and think you know this. I would have to say to myself you know this. I sometimes have to say to myself 'get a grip'; don't make this out to be a bigger deal than it needs to be. I have to not let people rush me' (M3.49)

'Learning new techniques is something that perhaps takes me a little bit longer than other people but once I can do it I can usually do it very well' (N7.53)

As noted above, some of the students compared themselves with other students who are non-dyslexic without being prompted which implies that the participants in this study perceived themselves as slower than their other peers. They therefore learnt to take time and/or appreciated it when given time to complete any particular tasks (M3.49, N2.18- see Chapter 5, Section 5.4, Table 5.bi, p.145). However, none of the comments made by any of the mentors in their portfolios related to this although the reason for this is unclear.

3.5 Poor short-term memory: forgetful

An analysis of the information from the students' files also showed that 10 of the participants, including four student midwives (M1.F; M2.F; M4.F; M5.F; N1.F; N3.F; N4.F; N5.F; N6.F; N7.F) from this study had poor short-term memory. However, only six of the students identified above and another student (who had nil in his file to suggest he had poor short-term memory), reported that having poor short-term memory impacted on their practice in terms of forgetfulness, during the face-to-face interview as echoed in the following comments:

'I think the memory one is definitely something that I have noticed I struggle with compared to other students that don't have dyslexia so I think that is definitely a dyslexic area, the memory' (N6.45)

'There might be some difficulties in the sense that I might not remember their routine or what care they need to be implemented' (N4.86)

'Yes so if I'm given two or three tasks to do I'll do the first and then forget what the other two tasks were' (N2.23)

'Because my memory is quite poor; if I was in say a court of Law two weeks after incident, it wouldn't be that quickly but just say, I wouldn't be able to remember. My dyslexia affects my memory quite a lot' (M5.72)

'I remember I forgot one section off of something once and I was like I'm sorry I have to come back I forgot to ask you about this' (N1.17)



The above comments suggest that apart from becoming forgetful soon after giving care and/or in the process of writing about care given (M5.82; N1.17; N2.17), the students had trouble in recalling events that took place over a few days or weeks (M5.72) and which has implications for practice.

3.5.1 Forgets names, drug dosage, phone numbers and equipment

Examples of some of the things the students forgot when in practice included names of people (especially upon starting on a new ward), the dosage, route and frequency of drugs to be given, telephone numbers and/or equipment they needed to place on the trolley for certain procedures as expressed:

'I probably remember everything they have said to me and everything we have chatted about but names for some reason just fly out of my head' (N7.127)

'I'll remember the name of the medication and the spellings I can look up, but dosage and the routes and the frequency and things like that were things that my brain was saying you better write that down because when it comes to writing you may forget the details' (N2.17)

'...When one of the nurses say can you bleep the doctor on this number? Everyone else will remember the number straightaway, for me it's what? Even though she has just said it. I think the memory one I can definitely relate to dyslexia.' (N6.45)

'If I needed to do a dressing again, I make the trolley and go back to the patient's bedside. I do find a lot of times I have forgotten certain bits but that doesn't get me as nervous because I explain to the patient, I'm so sorry I have forgotten this again!' (N6.61)

There were however no comments in any of the practice portfolios for those students that suggest that any of the students were forgetful. The reason for this is unclear. However, the students were noted to have developed strategies to avoid them becoming forgetful. Each of the students above for examples, wrote things down as in section 3.5.1 by N2.17, and by N6.10 and N7.98 in section 4.3 (p127), to help them remember what to do and which seem to have been effective. The lack of negative comments from the mentors implies the students were probably coping well. This seems to have been the case as both N2 and N6 were described as excellent team members, liked by many of the patients, and reliable (see Section 3.14, p109-111). Nonetheless, two different mentors (N3.P3 and N3.P5) commented on one other student (nurse 3) that she needed to improve her knowledge on medicines/medication. They did not however give reasons for this.



3.5.2 Forgets what to write (documenting)

According to four of the students, they sometimes forgot what to write, or what they had already written and these are reflected in the following comments:

'Doing the notes in general. There is like a care plan as soon as patients are admitted to the ward, that's the one I find I keep going back and forth to and I forget' (N6.83)

'I'll write a fairly long sentence and I'll have forgotten how it has started and sometimes I'll repeat myself' (N7.23)

'I can be putting normal vertex delivery of a live female infant and then say vitamin K given; I have missed the third stage. Has her placenta delivered or not? Whereas on this birth summary oh yeah; the placenta, I need to say about that. To look at this birth summary and make sure every box is ticked I know I haven't forgotten anything' (M5.82)

The last statement suggests that the student forgets to document some aspects of care given so she preferred the use of the birth summary, which has all the necessary information and which only requires her to tick boxes.

3.5.3 Forgetful when busy

As noted in the following statements, other participants reported that they tended to be forgetful when it is busy and this has implications for practice:

'I think I was really overloaded but at the time I didn't really deal with it. I just sort of carried on and said it would be OK and in the end, it wasn't particularly OK' (N4.140)

'I forgot to give somebody a Triptorelin tablet in the evening. In my defence, it wasn't written up properly, it was expected that I should have remembered it. I was very busy with somebody else who was anxious' (N7.69)

'There is sometimes when the ward's been hectic and you forget to do things and you go back to the patient and I'm like sorry I was supposed to get you this or you asked for this! It happens and it will happen. It can be quite stressful' (N3.111)

The students were aware of their shortfalls and did try to avoid forgetting information and/or procedures by varied means including writing things down and using prompt cards, which are discussed in Chapter 4. One of the strategies used by one of the student nurses to help



him remember things especially when carrying out procedures is known as the Neuro-Linguistic Programming Anchoring (NLPA).

‘So I tended to remember better if I associated what I needed to do with a physical action. So like if I touched my shoulder or pinched my finger or crossed my fingers or did something physical in association with what I needed to remember my brain coded it better, it stayed in there better’ (N2.33)

The NLPA is the process by which memory recall or other responses can be associated with some stimuli such as a gesture, touch and/or sound (Elston, 2012). Since this strategy was used by only one person, it did not form a theme although it sounded very interesting. It also seems to be a strategy that might be helpful in some way to other students with dyslexia. However, one wonders how it could be safely applied to procedures that involve aseptic technique so further discussion on this is given in Section 3.11 and in Chapter 6.

3.6 Stressful, frustrating and anxious

Analyses of information in the students’ files also showed that five of them might be prone to stress due to having dyslexia. However, more than five of the students (nine) reported that they found some of their experiences stressful and/or frustrating when working in the clinical areas as shown in the comments below:

‘I think to be honest every single placement that I start is quite stressful because they all do it differently... It can be quite stressful when you first start’ (N3.35)

‘It’s more of the general midwifery, feeling needed in every direction rather than...I suppose frustrated is the wrong word’ (M4.76)

‘But with new activities let’s say, I’m not confident. I was extremely nervous for several weeks’ (N7.131)

‘...just stressful and hard work’ (N5.7)

The above statements suggest that in addition to becoming stressed when working on a busy ward or managing a group of patients or clients, some of the students experienced stress and/or frustration each time they went on to a new ward or working area. The latter might have been due to lack of familiarity and having to learn new things and which meant having to take in a lot of new information in a short time. As noted in the above comments, the stress led on to anxiety for some.



3.6.1 Paperwork

Some students said they felt overwhelmed because of the amount of paperwork they had to complete:

'It was a little overwhelming' (N1.16)

'Paperwork initially felt overwhelming' (M1.21)

3.6.2 Stressful when busy

Working on a busy ward or environment also contributed to the experience of stress for the students:

'It's when you can feel things are building up, it's a busy ward, and you've got all four bays full and all four side rooms. That's 28 women, and the phones going and the doctors are asking for you. You're sort of pulled everywhere' (M4.76)

3.6.2i Head gets cloudy; confused; anxiety

Some comments made suggest that for some, confusion sets in when they get stressed or vice versa, especially when working on a busy ward or environment and which means overload with information:

'...because I am dyslexic, I am aware that things get muddled in my head sometimes and my head gets cloudy. If I've got too much information in there it makes me just want to sleep, I get tired and I get stressed' (N3.15)

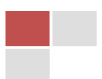
'...I think that way everything that needs to be documented is down and it confuses me if I don't. It just gets me stressed out' (N3.21)

'I'm the most organised person when I'm on the ward. I think maybe it is because of my dyslexia because if I'm not my head gets cloudy and I get really stressed and really emotional' (N3.54)

'I can't focus on all the information. I think it is because it's anxiety, like over thinking' (N6.70)

3.6.2ii More forgetful; symptoms of dyslexia worsen; stutter and make more mistakes when stressed

Other students felt that the stress they experienced as a result of working in a busy environment resulted in the worsening of known difficulties associated with their dyslexia such as forgetfulness, and stuttering. They were also more likely to make mistakes as demonstrated in the comments below:



'The more stressed I get the more forgetful I get and then all the dyslexic problems go into one' (N4.140)

'... If I'm stressed I make more mistakes and I start to stutter as well. The usual things that happen with dyslexia' (N7.50)

'... I tend to spe... spe... speak like that. I get a little bit confused' (N7.51)

'My words are all mixed up; my spelling is wrong and I think it's more the stress; it makes my dyslexia worse almost...' (M2.41)

'In a normal setting I can write absolutely fine but as soon as the pressure is put on I almost go blank' (M2.41)

The point made about stuttering was interesting although this was expressed by only one student. Comments from the students also suggest that stress may be triggered where the student has to do more than one thing at a time (See the later part of Section 3.7 below).

3.7 Multitasking is challenging

Some nursing and/or midwifery tasks involve multitasking. Seven of the participants (two student midwives and five student nurses) also reported that they found it difficult to multitask.

3.7.1 Difficult to listen and write at the same time

Examples of such difficulty seem to relate to the assessment of patients, especially when taking history, or when answering the telephone, both of which involved listening and writing down information at the same time:

'Whilst I'm writing, it's hard to listen and write at the same time. I tend to have the conversation and then write it. Oh I can't do the two at the same time very well' (M4.33)

'Active listening, trying to absorb as much information as you can, interpret that in your head or write that down or fill the tick boxes, can be quite difficult because you want to make sure you have covered all bases. So listening and taking it down, sometimes I need a minute to absorb.... It's only talking about it that I realise that I do which is quite...I've never really been aware of that. It's the listening and the writing at the same time that I find quite difficult' (N3.38)

'If I start writing something I won't listen. So I'll be writing something down and they will have said something else and I'll have completely missed what they have said' (N5.53)



'I'll get the paper ready before I even touch the phone no point in me answering it without the paper, whatever they tell me will go straight out there. Because I'm thinking that lady I just left is she OK, is that baby on the breast still and I will be thinking about that other lady because I haven't had time to transfer my focus if that makes sense?' (M5.103)

Taking history from patients involves listening and the observation of the patients' body language, how they are dressed, as well as the way in which they pass on information, as these all contribute to a holistic assessment of the patient (Crouch, 2005). However, comments made by some of the students in the study suggest that, apart from finding it difficult to write whilst listening at the same time, they found it difficult to make an observation at the same time:

'It was very difficult for me to actually physically listen, watch their body language and understand what it was they were saying and make notes at the same time. It just wasn't working, so in the end I just listened to them and made very little notes' (N2.16)

'I find it difficult to listen, write and observe at the same time' (N6.21)

3.7.2 Multitasking is challenging when giving care

Multitasking in the process of giving care was also reported as problematic for both student nurses and student midwives. Labour care for example, involves a lot of activities (multitasking) during all stages of labour care and particularly during the actual delivery itself which seems to have proven challenging to some of the participants, as expressed in the following comments:

'Nine times out of ten when I'm delivering I don't look at the clock. So I will say to me mentor when we are filling out the documents, what time was delivery. I can't deliver the baby, look at the blood loss and put the baby on to mum and look at the clock. I can't seem to do that' (M5.77)

The management of a group of patients also meant multitasking at times and this seemed to have been a challenge for the student nurse:

'...That can be ridiculous on the ward sometimes, when I look after my patients. Obviously if others need help with one of their patients that's fine but my priority is to look after my patients and ensure they are covered and kept well. It can be a bit when I'm going to do a task for my patient and then they are like, can you just come and help me do this? That can sometimes I'm like oh God!' (N3.111)



3.7.3 Multitasking results in forgetfulness and stress

According to some students multitasking sometimes also meant they 'forget to do things' and this can be stressful:

'Has difficulty in dealing with more than one thing at one time... yeah that can be ridiculous on the ward sometimes... there is sometimes when the wards been hectic and you forget to do things and you go back to the patient and I'm like sorry I was supposed to get you this or you asked for this! It happens and it will happen. It can be quite stressful' (N3.111)

'I'm like remember this bit, remember this bit and I am writing it and then I forget the next bit they have said. I can't quite keep up whilst I'm writing and listening at the same time' (N6.22)

'I will forget where they are ringing from or if I focus on the fact that they are ringing from A & E, I'll forget everything else. I can't focus on all the information. I think it is because it is anxiety, like over thinking' (N6.70)

For one student, multitasking also meant writing the wrong information in the patient's notes which has implications for practice as it raised issues of safety. This is further discussed under Section 3.11

3.8 Difficulty with numeracy (N)

Analysis of information in the participants' notes revealed that some of them (inclusive of one student midwife) have difficulty with numbers. Five of the student nurses also made comments during interview that suggested that they had difficulty with numbers in different ways, such as inability to do mental calculation, number switching and remembering certain numbers:

'Difficulty with numeracy- yes that ticks one of my boxes!' (N1.71).

'I will know that I need to write forty-one but for some reason I'll write fourteen' (N2.63)

The student midwife referred to above did not comment during the interview, that, she had difficulty with numeracy. Later, however, she commented on her drug management in Sec 3.8.1i

3.8.1 Drug administration difficulties

The difficulties the students experienced with numbers appear to have impacted on their practice during drug administration in different ways including recording and/or making the wrong statement orally as reflected in the following comments:



'Say if it was 21 milligrams I might say 12 milligrams but they would say no it is 21 and I went yeah I meant that. So I might say it wrong but I don't see it wrong if that makes sense?' (N4.106)

'I will end up writing it in mls or milligrams or little things like that I might miss it out. I write in milligrams when it really is in millilitres. Even though I have given the patient the right dose it might look like I have given them the completely wrong dose because I have written in' (N6.93)

3.8.1i Calculation of drugs:

Although the student midwife did not mention that she had problems with numeracy, she expressed concerns re drug administration which implies that she had drug calculation difficulties, so she tried to avoid taking part in drug administration and this has implications for practice:

'Medicines management is my least confident and favourite part of the whole midwifery care. Purely because there are so many different medicines, so many different doses and I can very easily get one of those wrong and if I do that is majorly detrimental, therefore I avoid it at all costs' (M5.117)

3.8.1ii Remembering, pronouncing and understanding drugs names:

Statements made by some of the students (including the student midwife mentioned above) suggest that they had difficulty either remembering and/or pronouncing names of drugs, some of which might have been exacerbated by illegible doctors' handwriting:

'The drugs charts and the rounds for me now are fine but again it's the words of the drugs. Sometimes I can't say the words. I'll try and say them and know that's not right...' (N3.91)

'With memorising what each medication is, I found that really challenging at first. Obviously remembering each one and the fact that they have all got these long names didn't help' (N6.84)

'One of the things that I struggle with sometimes is if the doctors have written the meds card and it's completely illegible I find it quite difficult to understand and if drugs names are very similar. I know that I struggle with that so I'm quite cautious to check and I'll have the drugs card open and I'll actually have the box and be looking at the letters so that the letters match up because I struggle to say the names of the drugs' (N5.55)

Statements made by the students in question also imply that they used existing tools or developed strategies for coping with the difficulties they encountered during drug



administration. This included the use of colour-codes to identify drugs and their routes by the student midwife which is discussed under the safety issues Section (3.11) and again in Chapter 4 in more detail under the strategies used to combat difficulties.

3.9 Poor organising skills (N)

Comments from the files of five of the student nurses and from that of one student midwife also suggest that they have poor organising skills and/or poor time management, (N1.F; N3.F; N4.F N6.F; N7.F; M5.F), the latter of which also implies poor organising skills. However, only 3 of the students made comments which suggest that such difficulty did have some impact on their practice:

'I'm just thinking of where I work. I've got a lot of ideas; I know how to do it. I know what it needs but I don't necessarily know how to organise it' (N4.65)

'I need to be a bit more organised than maybe what other students do because of my memory' (N6.10)

Although student N3 acknowledges that she has poor organising skills which tend to affect her home life and university class work, she seems to make the effort to ensure that such difficulty does not affect her practice when working with patients as reflected in her comments below:

'In my home life it's not very organised at the moment and it stresses me out (N3.62). I don't mind being disorganised and stressing myself out but if I'm disorganised with patients or my staff members then that's not acceptable. So on placement that's where I am on point' (N3.63)

There were comments from only one of the student midwives that implied that she found it difficult to organise herself when working on a busy postnatal ward. Her comments below also seem to support her earlier claims in Section 3.7.1 that she finds multitasking challenging:

'Yes, and the phones going, the call bells going, this mum's asking you a question, your managers saying write those notes at the bed side instead of the desk. You are trying to look at your bit of paper and see what you have done and what you haven't! It's quite difficult in postnatal to organise yourself' (M5.116)

There were however no comments from the mentors in the students' portfolio that suggest that any of the students had poor organising skills. Contrarily, a mentor commented in the portfolio for student nurse 3 (N3. P7) and another on student midwife 3 (M3.P5), describing each of them as 'very organised'. This supported N3's comments above that although she



is disorganised at home, she is *'on point'* when on placement, in other words, organised and which is good practice. Interesting to note that N6 was also described as *'reliable, ...is carrying out clinical skills with attention to detail'* (N6.P) implying she is also organised. This means how some of the students perceived themselves was probably different to how the mentors perceived them.

3.10 Labour care provision is challenging (M)

All the student midwives that took part in the study appeared to have had enjoyable and varied experiences when giving care to women (in labour) and their families. Two of them (M3; M4) were also described by their mentors as competent. However, some of the comments made also suggest that giving labour care was challenging for some.

3.10.1 Lack of familiarity

One of the students, for example, expressed how clumsy and awkward it felt in the initial drawing up of drugs as reflected in the statement below:

'The initial just drawing up of drugs that kind of feeling quite clumsy about ...I felt awkward about doing it, just how to do it. ...sometimes I feel like I can be quite cack handed' (M3.24)

It could be said that the lack of familiarity probably contributed to the student feeling awkward initially. Comments made in her practice portfolio by her mentors suggest that she seems to *'work well independently'* (M3.P5). However, students are required to administer drugs under direct supervision which involves close observation and checking on what the students are doing. As one student nurse (N4.110) puts it, for example, she was fine when she had to do things by herself *'but somebody being there watching over you, makes you do mistakes'*. Although working within a different context, it could be assumed the student midwife's reaction to drawing up of drugs was also probably due to her being watched.

For another participant, the use of the 24-hour clock posed some difficulty when working on night shifts:

'When I am on night shifts the timing of the changeover in the nights, I quite often write the wrong time. I have to go back and correct myself' (M4.53)

Once again, the lack of familiarity with night shifts might have played a part in the students experience as described above. When asked about what happens during an emergency, the main points that were raised related to keeping records, some of which have already been discussed in the documentation (Section 3.2).



3.10.2 Performing tasks: abdominal palpation and vaginal examinations

In addition to performing new tasks and working night shifts, the varied assessments carried out on women during labour, with particular reference to vaginal examinations (VE's), which normally follows an abdominal palpation, proved challenging to some, as noted below. Statements from one student, for example, were contradictory in the sense that she seemed to suggest that she loved performing vaginal examinations as they were simple to do. However, aspects of her comments further on highlighted some of the challenges she experienced:

'I find it quite simple. The only thing I don't get easily is station, because I then need to visualise the pelvis and how many fifths and is two fifths what I can feel or what's in the pelvis? I find station and palpable fifths very confusing but dilatation easy, effacement, all that sort of stuff' (M5.66)

The complexity involved in carrying out a vaginal examination also proved confusing at times which also meant it took a while to grasp the knowledge and skills involved in diagnosing what was being felt during assessment. For this student, the drawing of what was felt on examination was needed to assist in the diagnoses of the baby's position:

'Most of the time; sometimes my lefts and rights and anterior and posterior get confused with things. So if they say what posture is that I'm thinking well is the posterior, posterior to mum or posterior to me? Who's posterior? LOA [left-occipito-anterior position] and ROA [right-occipito-anterior position], OK; so it is mum's right, not my right. Just getting that into perspective took a little bit of time' (M5.69)

'Pictures is better. I wouldn't be able to say on a VE, sutures there, that one's there; so that means that that baby is away, whatever. I would need to go away and draw that' (M5.68)

The last line of the above statement (M5.69) also suggests that it took a while to learn how to work out the baby's position in relation to the mother's pelvis. Findings following a comparative study of '13 adults with and 12' (control) adults without dyslexia 'in procedural learning of motor sequence skill over a period of 24 hours' showed that those with dyslexia were significantly slower than those in the control group (Nicholson *et al.*, 2010, p.203). It is, however, arguable that it also takes many qualified midwives with or without dyslexia a while to become experts at vaginal examinations since the error rate for vaginal examinations in ascertaining foetal positions is high (Shetty *et al.*, 2014).

Not being able to see or indeed visualise what one was feeling during a vaginal examination also proved problematic and would have contributed to the challenges faced



by the students during such assessments. However, such challenges are not necessarily a problem for students with dyslexia only:

'...Doing an ARM (artificial rupture of membranes) and telling me what you are doing, how can I see what you are doing? What is there for me to see? I've seen you do a vaginal examination and then slide a hook, how can I see? How can I visualise or imagine where you are feeling? I like it, especially with the vaginal examinations, when the mentor would say tell me what you feel and I would tell them' (M3.27)

A vaginal examination on a woman in labour is to ascertain the dilatation, as well as the effacement of the cervix and its application to the presenting part. It also includes checking for intact or broken membranes. Where the membranes are broken, it is to ascertain whether or not there is any liquor draining and if so its colour (whether or not it is meconium and/or blood stained), its amount, what part of the baby is presenting, its station and position in relation to the ischia spines. In a normal cephalic presentation, the latter could be worked out based on what type of sutures are felt (on the baby's head) in relation to the maternal pelvis and which helps to confirm the lie of the baby, following an abdominal palpation. There is a lot more to vaginal examinations of women in labour and the above are just examples of what might be assessed during that time. Knowing what to do when abnormal information such as cord presentation, for example, is noted is also of great importance. Accurate assessment of the foetal position is important for the effective planning and management of the labour. However, research findings suggest high error rates and which is discussed in Chapter 6.

3.10.3 Performing tasks: Conducting deliveries

Perceptions regarding the conducting of deliveries were also given by the students; some of these also highlighted issues with foetal positions in relation to the position adopted by the mother during the actual delivery:

'I thought of another thing, sorry! Positions; so if a lady is semi recumbent, which a lot of ladies are, yeah the head's here, the sutures are here. If she is on all fours it's all back to front, and that confuses me. Positions are very difficult. Where do I stand for delivery? I'm usually at the end of the bed but if she is on left lateral I need to be behind her and her legs here so how do I get over here? She's on all fours, where do I stand? Where does my trolley need to be? I find positioning affects me a lot' (M5.48)

It could be said that the above statement reflects questions that might be asked by others whether or not they have dyslexia. Interestingly, only one of the five students reported



difficulties in determining the baby's position in labour during vagina examinations as well as during the actual delivery itself.

Another student (M1.31) expressed that delivering babies 'is daunting', 'a big responsibility' so to help ensure all goes well, she is 'thorough' and goes 'by the book' when giving care to women in labour. As to what she meant by daunting was however not explained nor explored. For another student, dealing with quick labours also seemed to have been a challenge especially when it was time to write up the events in logical order:

'Quick labours, the precipitant ones, they catch you out!' (Laughs-M4.35)
When you have done the delivery, you've got a lady coming in fully ...and it's quick labour, you deliver and you haven't written a thing, you go back and then it's trying to remember it in logical order' (M4.37)

As noted above, the student found it challenging to remember the sequence of events due to the pace at which they occurred and especially when the client was admitted already in the second stage of labour. This would have meant that she was unable to write things down as they occurred and had to attend to the woman and deliver the baby before writing.

It could be said then that comments made by four of the student midwives in this study seem to imply that they faced different challenges when giving care to women in labour although some of the difficulties they reported on might not be peculiar to individuals with dyslexia alone.

3.11 Safety Issues

Some of the challenges reported above and those reported earlier on by both nursing and midwifery students raised questions re safety and generated the above theme which is discussed in this section.

3.11.1 Wrong information or notes

All nursing and midwifery staff and students are required by the Nursing and Midwifery Council (2009: 2010: 2015, p.9) to keep accurate and clear 'records relevant to' their practice. Examples of comments made by students re documentation, however, suggest that on occasions information was written in the wrong notes or the wrong information was written in the correct set of patients notes as noted below:

'So many times I have written baby fed well in mum's notes but they are supposed to be obviously in baby's notes. So that's a struggle' (M5.95)

'We are meant to write these notes at the bed side however I struggle with that because I'm leaning on their tiny table which is usually crowded with stuff. They are asking me questions at the same time. Dad's saying can you



look at the baby, what's happening? I'm trying to write the notes and think of a plan. So I need to just take those notes and have them at the desk, so I can thoroughly concentrate on writing. I find if they ask me a question, I will be writing what they are asking me instead of what I am meant to be writing' (M5.110)

'I might say that this person needs something when they don't need something so I might get it the wrong way round' (N4.50)

'I will end up writing it in mls or milligrams or little things like that I might miss it out. I write in milligrams when it really is in millilitres. Even though I have given the patient the right dose it might look like I have given them the completely wrong dose because I have written in' (N6.93)

3.11.1ii Forgetfulness

One student also reported that she had difficulty remembering to record events in logical order and which also meant missing some of the necessary information out:

'I can be putting normal vertex delivery of a live female infant and then say vitamin K given; I have missed the third stage. Has her placenta delivered or not?' (M5.82)

3.11.1iii Write or read backwards (words or numbers); wrong information:

Another safety issue was the report by some students that they mix their letters and/or words up or read and write backwards which also involved numbers:

'...When I 'm writing sometimes I do it backwards.' (N1.24)

'Say if it was 21 milligrams I might say 12 milligrams but they would say no it's 21 and I went yeah I meant that. So, I might say it wrong but I don't see it wrong if that makes sense?' (N4.106)

'I will know that I need to write 41 but for some reason I'll write 14' (N2.63)

'I put an allergy band on with Penicillin or codeine spelt wrong and you just look at it and it's just so embarrassing you think anyone walking up to that woman will see Penicillin and the fact that I've put an 'l' where an 'e' should be or the other way round won't change anything they will know that she's still allergic to Penicillin, but yeah you have to change it' (M1.12)

The issues identified above were mainly related to record keeping which involved documentation of information into patients and clients care plans and notes, lack of logical sequence, and writing backwards, some of which impacted on their practice with particular



reference to drug administration. It also means that some of the records they kept or tried to keep were probably not always clear or indeed accurate.

With reference to the first comments (M5.95) re writing 'baby fed well' into mums notes instead of writing the information into the baby's notes, it is arguable that, that student's action was acceptable since she was specific and mentioned that it was the baby that fed well. However, she should have repeated same information into the baby's notes also. It would have been more problematic if the baby had fed well and the student wrote in the mothers note 'fed well' and in which case the information could be attributed to the mother instead.

3.11.1iv Multitasking

Apart from that, multitasking also meant writing wrong information into the patient's notes by the same student midwife (M5.110). This, coupled with the lack of logical sequence which also meant missing some important information, could have led to the mismanagement of a client so has implications for practice. The student however, seemed to be fully aware of her shortfalls and had acknowledged some of the strategies she needed to adopt to avoid her writing the wrong information into the notes. There was also no evidence of mismanagement of any patient or report from any of the students or from the available mentors' comments regarding same.

The statements by student nurse 4 (N4.50) and that by student nurse 2 (N2) also raise questions of safety as they are each suggestive of inaccurate record keeping which is at variance with NMC requirements. Further exploration with student 4 (N4) revealed that the difficulty she experienced was to do with both the spoken word and her written work and which included stating and/or writing numbers backwards (N4.106) on some occasions so tended to get someone to check what she had written. Mistakes such as stating numbers the other way round (12 for 21 for example), could have led to the giving of wrong dosage of drugs to patients though there was no evidence that this was the case. Getting someone to check one's work is good practice, and is in line with taking 'measures to reduce the likelihood of mistakes' (NMC, 2015b:p.14, Section,19.1): however, upon qualification the student would be expected to practise without close supervision (NMC, 2009; NMC, 2010) so has implications for practice. It is noteworthy that comments in student nurse 4 (N4)'s portfolio suggest that she has innovative and problem-solving skills as according to the mentors the student developed her own techniques for dealing with patients.

3.11.1v Wrong information; Lack of awareness

Another student (M1.12) reported the wrong spelling of certain drugs (Codeine and Penicillin) when she prepared allergy bands for patients. According to the student, she was



fully aware that this was happening so took the necessary steps to minimise and/or avoid mistakes. However, her statement that having put an 'l' where an 'e' should be shouldn't change anything implies the lack of awareness of possible mistakes that could occur. Although the mistakes made were not related to prescription, some drug names either look and/or sound alike (Gomella, 2015). Codeine (analgesic derived from morphine), for example, looks and sounds like Cardene (an anti-hypertensive drug) or like Lodine (an anti-inflammatory drug) if spelt wrongly. Penicillamine (a disease-modifying anti-rheumatic drug) has also been mistakenly dispensed by a pharmacist and administered to a patient instead of Penicillin (Kelly, Grissinger and Phillips, 2010). Hence, if the student were to mistakenly prescribe another drug due to a spelling error in the future, it could lead to drug administration error so has implications for practice. There was, however, no report from the student in question or from any of the students or from their portfolios that wrong drug and/or dosage was given to any patient.

3.11.2 Performing tasks; lack of awareness

Other safety related issues identified were to do with performing tasks. A comment made by one student, for example, implies that she lacked awareness of the possible risk of infection if she forgets an apron:

'But I wouldn't want to forget. I know it's not life-threatening if I forget an extra pair of gloves, or an apron' (N3.57)

Forgetting an extra pair of gloves suggests she already has a pair. However, forgetting her apron would mean carrying out a procedure without it so if she happens to become contaminated with bacteria or viruses from patients, she would then very likely pass them on to other patients and staff.

3.11.3 Coping strategies: Avoidance

Some of the students used avoidance as a strategy. Student M5 for example, was in her third year and expressed that she had been involved in attending to individual patients' drug administration howbeit she did so reluctantly and tried to avoid doing so at all costs (Chapter 4, Section 4.6.2). Her statement below also implied that she did not know what a drug round involved and lacked the confidence to carry out a drug round upon qualifying:

'They have started to do ward rounds now so if I qualify and they say you are doing the drug round, I would just have to deal with an individual patient and an individual time. I wouldn't be able to just dish all these drugs out and do that. Personally, I wouldn't feel like I had done that effectively' (M5.125)



Unfortunately, copies of comments from her portfolio were not made available to the researcher as promised so it was difficult to explore any perceptions staff had on her drugs administration and management. The fact that she was still on the course implies that she has been achieving her objectives and required standards safely although this is just an assumption.

3.11.3i Colour codes for drug identification

Some students also used colour codes to help identify type of and dosage of drugs or remember the names of the drugs as reflected in the following statements:

'So I will get an A4 bit of paper, put a title of a drug, so paracetamol at the top in red, then in red I've got route, so oral in a different colour. Then the dose in a different colour as the dose and then I stick it on the wall and a whole wall of my room is covered in A4 bits of paper colour-coded. So all analgesics will be a certain colour, all anti-emetics will be a colour. So when I go to the drugs trolley and somebody says can you get some... I'll think what colour was that on my wall and I'll think it was green it's an ante emetic' (M5.122)

'The drugs charts and the rounds for me now are fine but again it's the words of the drugs. Sometimes I can't say the words. I'll try and say them and know that's not right. Because there are so many that can be quite difficult but again it's taking the labels home. What I tend to do is take labels home with drugs names and I'll write in my own words little bullet points in my coloured pens and then I remember it a lot better than on the BNF and the bits of paper' (N3.91)

Whilst it is important for one to acknowledge that individuals have different learning styles, the above outlined strategy for identifying types and dosages of drugs (M5.122) leaves one wondering as to what happens if there is more than one analgesic in the trolley (which is usually the case) and the student has colour-coded all analgesics red, for example. It is unclear how she could decide which drug to give if she were solely dependent on colour-coding, leaving many questions to be asked. As previously mentioned, however, the non-submission of this student's practice portfolio, meant that one was unable to find out whether or not there are any comments from any of her mentors regarding her coping strategies.

3.11.3ii Neuro-Linguistic Programming Anchoring

According to Elston (2012), anchoring in Neuro-Linguistic Programming is described as the



'process by which a gesture, touch or sound' is applied 'at the peak of a state, either in oneself or someone else'. As previously mention in Section 3.5.3 student nurse 2 (N2)'s comments also suggest that he used the Neuro-linguistic Programming Anchoring (NLPA) to help him remember processes involved in any procedure:

'Physical, I learn very well from physically doing things and touching things. One of the mechanisms I learnt, I had a sort of assistant lady who was a specialist in dyslexia and stuff up at the ...college, one of the things that I worked out there was associating, remembering things with physical actions' (N2.32)

'Yes so if I'm given two or three tasks to do I'll do the first and then forget what the other two tasks were. So I tended to remember better if I associated what I needed to do with a physical action. So like if I touched my shoulder or pinched my finger or crossed my fingers or did something physical in association with what I needed to remember, my brain coded it better, it stayed in there better' (N2.33)

'Because the process is quite physically driven it's almost like then you could do it blindfolded' (N2.34)

'OK. That's very interesting. So that's how you tend to cope by the bedside if you have to do anything in particular? You learn that way?' (Researcher, p.44)

'Yeah in terms of that I will recognise the process, and then remember the process by the physical actions' (N2.44)

It could be said that the above coping strategy seems to work well and seems to be beneficial in helping the student to remember things. Upon talking to him, it sounded as if he used the technique for different tasks to help him remember sequences when carrying out procedures. The question arises as to how this technique is safely applied to a procedure that involves an invasive technique and aseptic technique is required, using physical actions? In other words, how would the student try to remember the processes involved using touching different parts of his body with sterile gloves on without desterilising those gloves? This was, however, not explored and one could only assume that the student would choose carefully as to what actions he will use for such a procedure.

3.12 Confidence

Having dyslexia, with all the accompanied challenges faced, also seems to have resulted in some of the students lacking confidence although they did not always portray this



outwardly:

'I come across as very confident but inside I'm not usually, it's a coping strategy because I am constantly second guessing myself about things' (N7.129)

'Yeah I would say that I have a massive lack of confidence in myself but I don't outwardly show it and I think that I've definitely chosen jobs to help me overcome my lack of confidence and things like that' (M3.59)

'Yeah. I have lack of confidence and get nervous but then I'll do it and they are like well done!' (N3.111)

'...Was confident and enthusiastic' (N3.P4)

In contrast to student N3 statement above, the mentors comments in the practice portfolio suggest that N3 has confidence, implying that, like N7 and M3 above, student N3 portrayed self as confident.

3.12.1 Context and type of task

Lacking confidence was associated with the context in which the student worked and/or to certain aspects of practice only, implying that certain areas of practice was found to be more challenging than others. Comments from some of the mentors clearly support this:

'She appears to be confident on postnatal ward but less so on labour ward' ... have found her to be very competent in all areas' (M4.P3)

One student midwife also commented that she *felt* 'quite confident on the postnatal ward but medicine management' was the area she felt 'less confident in' (M5.95; M5.117). Another student (N3) expressed the lack of confidence despite being good at drug calculations so had to double-check to ensure that the right dosage of drugs were administered to patients:

'Yeah I would say it's a confidence thing. Again, because I know that I'm dyslexic it's almost like when it comes to drug calculations I question myself now. As before I didn't, when I didn't know I was dyslexic if I knew the answer I was one hundred percent confident. Since I have been diagnosed with dyslexia it's almost like I question myself more' (N3.97)

Exposure to new activities or the evaluation of care also meant the lack of confidence for some:

'I am confident in the work I do. But with new activities let's say, I'm not confident' (N7.130-1)



'...Confidence, when it comes to evaluating is a big thing because I am not one hundred percent if what I am evaluating is the right thing' (N6.107)

3.12.2 Stress and forgetfulness

For another student, lack of confidence was part of a chain of reactions after she was overloaded (presumably with work and information) in the placement areas as expressed in the following comment:

'I have had similar problems in a placement more recently I think I was really overloaded but at the time I didn't really deal with it. I just sort of carried on and said it would be OK and in the end it wasn't particularly OK. The more stressed I get the more forgetful and then all the dyslexic problems go into one. Then I'm picking things, so then my forgetfulness made me lack in confidence so I suppose in a way it's making sure mentors understand that if they don't pick up on some points then they are going to just mould together. You won't necessarily be able to under-pick it, does that make sense?' (N4.140)

As part of dyslexia, this particular student reported that she has poor short-term memory (Section 3.1iv). As noted above, her symptoms which include forgetfulness seem to worsen when working under pressure and which in turn made her lack confidence.

3.13 Disclosure

Although all the students who participated in this study had disclosed to the university of their dyslexia, it came to light during the one-to-one, face-to-face interviews that there were issues related to disclosure in the clinical areas with seven of the students. Only some of them chose to disclose to their mentors and when they did it was only to some of their mentors:

'I don't think my mentors know I'm dyslexic, I don't tell them' (M1.61)

'I wouldn't even tell my mentor in practice when I first went out into the community that I was dyslexic' (M3.9)

3.13.1 Past experiences

The next two comments imply that the students' past experiences following disclosure played a part in future decisions regarding disclosure. It is however interesting to note that student nurse (N3) did not like the follow up by qualified staff although it is expected of staff to do so to ensure that the student receives appropriate support including provision of reasonable adjustment where necessary (NMC, 2010; 2015a; Section 8.7). Although not



explored, the student's reaction might have been due to the stigma attached to dyslexia, however, this is only an assumption:

'...The thing is I don't disclose to placement that I am dyslexic. I did the first two times but then somebody kept coming out every week to come and see me to make sure I was OK. I hated it! I felt like there was something wrong with me! I was I'm fine, I've got my strategies and if I need help I will ask for help. I don't like it when people come out and see me because of my dyslexia. I don't like that' (N3.103)

'The mentor I was working with said, 'well I didn't know you were dyslexic' and I said 'yeah I am' and she said 'well your notes are OK and you can spell and you can write OK' and I thought well there you go and that's the reason why I wouldn't bother telling people I'm dyslexic. Her perception was, clearly, that you are almost retarded in some way if you are dyslexic and I thought that's why I wouldn't tell you' (M3.11)

The last comment by the student midwife (M3) also reflects fear of being judged and which is the next theme for discussion.

3.13.2 Fear of being judged

Some of the students gave reasons for why they chose to disclose or not to disclose to some of their mentors. This included fear of being judged as incapable, stupid or weak, and of possible future unemployment:

'I would feel very uncomfortable disclosing to some of the mentors I have had to work with in practice that I am dyslexic; I feel that would be justification on their part to consider me incapable...' (M3-typed note)

'They just think dyslexia means that you are stupid and that's the issue with everything because people do' (N5.73)

'Do you know what I mean? I would feel a little bit, you know, I need to get a job there at the end of the day. I don't want you having to give me loads more extra support because that shows I'm weaker than the rest of my colleagues' (M5.155)

Such fears might have been due to the stigma attached to dyslexia although this was not explored. It was interesting that the student midwives seemed more concerned about disclosure than the student nurses.



3.13.3 Length of placement; lack of mentor continuity

For others, the reason for disclosure or non-disclosure included how long they spent or have to spend on any particular placement as this sometimes affected continuity of mentoring:

'The community ones, I do when we are in a placement for six weeks or eight weeks but in the hospital you only get a mentor for one shift and then it's somebody else. So I don't want to start every shift going by the way I'm dyslexic. I don't want to be starting by making excuses' (M1.62-63)

'I've nine times out of ten disclosed that I'm dyslexic to them. Yeah. I mean if I'm working a one off shift with them they tend not to get to know you too well' (M4.61-62)

'I have told mentors if I have been with them for a long time or they've said 'whoa what's this' and I've said oh well actually I'm dyslexic, I'm working on that' (M1.75)

The last comment above also suggests that the student does sometimes only disclose having dyslexia when an aspect or aspects of her practice is questioned by a mentor, whether or not she had worked with them for a long period. The same student stated as follows:

'If I have been working with them for a while and I need some help with something I would but no because ...the continuity of mentors is awful' (M1.65)

The above statement suggests that the student was prepared to disclose where she felt she needed help. It also re-emphasises the importance of the length of time she works with a mentor prior to disclosing her dyslexia.

3.14 Practice is a strength (positive aspects)

Although much of the students' perceptions of the impact of dyslexia on their practice seem to be negative, they also expressed their perceptions on how dyslexia impacted on their practice in positive ways under the theme identified above, namely, 'practice is a strength'. Some of them, for instance, expressed that they perceived practice as a strength as they had coped well and comments noted in their practice portfolios seem to validate such claims as some were noted as exceptional, caring, conscientious and reliable by their mentors. Examples of comments that reflect the above points from both students and mentors are as follows:



'My strongest point is practice. I am getting A's and B's in practice' (N1.28)

'I think anything hands on is my niche, that's where I'm good at. That's the bit where I am most confident' (N3.48)

'...Displays great potential; she is very hard working, caring and conscientious nurse who consistently strives to deliver a high standard of care. She is an excellent team player, very cheerful and outgoing personality. Her patients very much like her and regularly say so' (N3.P5)

'...Is very caring' (M4.P3)

'It's never been a problem. Because it's very practical being a midwife, practically I cope really well' (M2.41)

'Works well independently' (M3.P4; M3.P6)

'...Has gained trust respect from the team. Overall an exceptional student midwife' (M3.P3)

'I think that's probably my strengths, that's one part I'm not modest about is when it comes to looking after patients' (N6.56)

'She... is reliable in carrying out clinical skills with attention to details' (N6.P)

'Day one I hadn't a clue. I had never done anything like it before and within a few weeks I have just fitted in and just thought this is great. I feel like I am doing something worthwhile now. I felt like I have got a bit of a talent for it but that's up to other people, not me!' (N7.62 -both laughed)

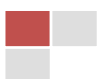
Earlier on, the above student (N7) expressed that, although he works at a slow pace, 'slowing things down is often very helpful for people with learning disabilities and people without a SPLD' as it means working at their pace (N7.38). My response was that it sounded as if he had chosen the correct field to work in to which he responded:

'I think it found me if you know what I mean' (N7.39)

From the above comments, it is noted that working at a slow pace due to dyslexia is perceived positively by student nurse 7 (N7) and it proved to be beneficial to people with learning disabilities and has implications for practice.

3.14.1 Compensatory skills; creative and problem solving

The following comments from students and/or from different mentors suggest that two of



the students (N4 and N5) had or had developed problem-solving and creative skills which also imply demonstration of the use of initiative whilst working in the practice areas. In the comments below, student nurse (N5) described herself as creative and as someone who sees outside the box and attributed these to dyslexia, implying that those skills are compensatory:

'I think that actually being dyslexic is a positive thing with quite a lot of things, with regards to being able to see outside the box and come up with different and creative...(inaudible). I'm quite a creative person, see other ways around things.... when it actually comes to coming up with like a care plan or anything like that, like a way of looking after someone I think actually having dyslexia is an advantage' (N5.9)

'With me my dyslexia has allowed me to be quite creative, see things outside the box. I can problem solve quite easily and see my way around things that other people don't necessarily see straightaway with life in general not just with nursing. I think that when it comes to nursing you are always coming across problems and barriers and being able to problem- solve and find an alternative way to do something quickly is a massive positive' (N5.62)

'I'm not saying that someone else might not be able to come up with something quickly but what I'll come out with will be quite different and it will be outside the box, not what you would normally do. I'm quite good at coming up with other ways around things' (N5.65)

Comments in the portfolio of the above student (N5) suggest that she 'has been an excellent team member' and demonstrates 'a very mature understanding' (N5.P5) as well as showing a lot of initiative (N5.P4, N5.P5) when working in the clinical areas, which seems to validate her claims. The mentor's comments did not however give any specific examples of why N5 was an excellent team member. Comments in the practice portfolio of student nurse 4's portfolio (N4.P3, N4.P5) by two different mentors, also imply that having noted a problem, the student nurse (N4) did think of new ideas, as well as used her initiative to implement them (problem-solving) with the support of her mentors:

'The student developed own techniques to work alongside individuals in both care settings. Has come up with key tools that could be implemented in line with....' (N4.P5)

'Implemented some changes to medication charts' (N4.P3)

Interestingly, the student involved (N4) did not mention any of the above points during the face to face interview.



3.14.2 Organising and prioritising skills

Other skills the students perceived as compensatory included 'organising and prioritising skills'. One student, for example, expressed her awareness of her poor organising skills which affects her a lot at home and with her university work. She was, however, determined to ensure that this aspect of dyslexia does not impact on her practice as she does not want this to affect the care she gives to patients by getting organised when in clinical practice as reflected in the following statements:

'In my home life it's not very organised at the moment and it stresses me out. I don't think about it because it stresses me out. At the moment with my dissertation and my university work I'm not very organised at the moment but that's not affecting anyone else but me. Then on placement I have to be organised because that doesn't just affect me it affects my patients and I have to give the best to my patients and the only way I can do that is to be organised' (N3.62)

'I'm the most organised person when I'm on the ward. I think maybe it is because of my dyslexia because if I'm not my head gets cloudy and I get really stressed and really emotional' (N3.54)

'Has been a pleasure to work with; she is a very organised person, and when she has her own set of patients, knows about what is going on' (N3.P7)

Student nurse 3's efforts to be organised when in clinical practice seemed to have paid off as her mentor's comments in the practice portfolio (N3.P7) supported her claim that she is well organised. Apart from her determination to give good care, the development of organising skills in practice was to avoid getting herself stressed. There were seven other students who also had or had developed organising and prioritising skills, some of which were supported by their mentors' comments in their practice portfolios:

'I am quite an organised person. I do think again that is a coping strategy. I am by nature very organised. I plan, I know what I have to do' (M3.52)

'Student (name replaced) is very organised...' (M3.P5)

'I am quite good at getting things sorted very quickly, getting a good balance and prioritising what needs to be done' (M2.75)

'...You have to put the names and addresses and contact numbers and everything on three or four forms. So I get there early, get the booking packs



written out as much as I can before she gets there. Just so that I've got a bit more time with the writing for the other information' (M1.9)

'...Have to prioritise them because they need obs more often' (N1.67)

'That needs to happen first, that needs to happen second that needs to happen third or you are aware of particular patients needing particular treatments or that they are particularly unwell or particular things need to happen in order.... My brain tends to work quite well in those circumstances in terms of understanding what needs to happen first and how to get those done' (N2.77)

'What I do then is I prioritise my patients and, for example, if I have got beds one to five, I'll prioritise them and give the beds different numbers on my handover sheet. So, for example, if bed four was more of a priority in terms of the care they need I'll write one next to them. So I do it in numbers then I can see who is my priority, for example, who needs what soon as, if the physio is coming I can get them ready. If there is one patient that just needs rest and care obviously they will be last priority. I will do it in number system.... I am looking at is their priority of care and I do that as a number' (N6.77)

'I actually come into my own. If I have got a team of staff with me, I can direct and prioritise jobs really quickly' (N7.87)

Although they seem to be compensatory for the students, organising as well as prioritising skills are essential skills in both nursing and midwifery and their development suggests that the students are achieving those aspects of the required standards set by the Nursing and Midwifery Council (2009; 2010; 2014)

3.14.3 Good verbal, interpersonal and relational skills

As previously noted Section 3.2 many of the students seem to have difficulty with writing and this impacted on their record keeping when they had to document information in the patients care plans and in their notes whilst working in clinical practice. However, seven of the students either described themselves and/or were described by their mentors as having very good interpersonal and/or relational skills. These skills were perceived by the students as compensatory:

'I think that's quite a dyslexic trait that you tend to talk more to may be cover up for areas where you may not have been so strong' (M3.16)



'...She communicates extremely well with the women and their families' (M3.P4)

'Her record-keeping is exceptionally good and her communication with staff are of high standard' (M3.P5)

'Her communication with clients and staff are of a high standard. ...discusses and explains care plans ...in a language they are able to understand' (M3.P5)

'I find it much easier to kind of support ladies and show them that I am there genuinely, rather than give them the facts and be kind of robotic in giving this healthcare....' (M5.33)

'It has been a privilege to facilitate women in labour. I find that you have to be professional, but like I said earlier I find if you're a professional, but not a robot you can relate to ladies and you can get them to listen to you than if you go, 'Hi I am, we are going to do this, a, b and c, how are you doing, are you really tired'. I find if you get on a level with ladies then I find that they will open up a lot more to you rather than being this strict you'll do as I say type person. But I found it's..., that's my favourite part' (M5.37)

'I can tell you what's happening. I can verbally say it all, I can get it across that way but I can't get it on paper' (M2.42)

'I'm fine with that. I think my communication is relatively good. I can understand patients and I think they understand me' (N1.33)

'I have been quite praised of my placement that I am very good with people. I am very good at communicating, I'm very good at picking up subtle changes with people and for me that's my forte. That's where my main strengths lie talking to people and chatting to people and relating with people and I have that ability to talk to anybody about anything realistically' (N2.28)

'...Has good communication / interpersonal skills ...good record keeping ...worked hard to achieve all learning objectives' (N2.P2)

'For me that is one of the easiest parts of being on placement because I think I have got really strong communication skills. Maybe that makes up for my writing skills taking so long, my communication doesn't, I'm quite quick with that' (N6.56)

'She has good communications skills ...' (N6.P)



3.14.3i Photographic memory and observational skills

A couple of the students also claimed to have photographic memory; in other words, they are able to remember something very clearly and reproduce the same after taking a good look at it. For one student, this process appeared to be enhanced by the use of varied coloured pens:

'If I stare long and hard at something for long enough I will be able to recall how I have seen it on the page. So in the same way if you were asking me something about notes I could visualise it in my head' (M3.41)

'Yeah what was in red, yeah I would be able to know what was on this page and I could follow the arrows and I could see the answer in my head. It's like my brain had took a picture of the paper in my head and I couldn't believe how much more information I'd absorbed just using different coloured pens. So on placement I will identify different things in different colours because then it's brighter' (N3.78)

Having photographic memory means the students have very good observational skills, all of which are part of good communication skills. The following statement also suggests that some of the students had very good observational skills when dealing with patients:

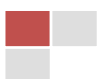
'I find when you do discuss things you can pick a lot up on non-verbal communication as well what the lady is saying. Sometimes what she is saying and her body language is completely different. Therefore, sometimes I pick that up more than what she is saying sometimes. ...I feel that part of my communication skills is much more advanced than my verbal explaining skills. I have been told I am observant' (M5.32-34)

Although copies of comments in the portfolio for the above student (M5) were not handed in for analysis, she seemed confident that she had developed such an important compensatory skill which is very necessary for the assessment, care planning, implementation and evaluation of the care of patients.

3.14.4 Familiarity: past experience and repetition

Apart from their compensatory skills, the students' ability to cope may also have been enhanced by having to repeat certain procedures over and over again; for example, when assessing and/or giving care or managing a group of patients:

'Paperwork initially felt overwhelming, but it doesn't anymore. That is just familiarity thing for me and that's ok' (M1.21)



'As you become familiar with the paperwork and more familiar with what you are looking for, it becomes easier' (N1.20)

'That's not a problem for me because I worked as a receptionist for a number of years. So I was used to being on a phone and taking down notes. So listening and writing I am quite good at doing that. So that's never been an issue' (M2.25)

'With certain medications, obviously the more I do it, the easier it gets. When a new one comes I find I have to go to that big book and look at the back of it' (N6.91)

'...Most wards follow the same routine. Some patients get up later, other patients get up early but you tend to know those ones. So when you start in the morning you have a process to follow. You know the care for who needs to get out of bed, who needs what physical care, who needs what medication in the morning, who needs their vitals checking and you go through that mental tick list of going that's done, that's done.... brilliant, next' (N2.75)

'Obviously the repetition helps a lot; you are doing three bookings a day sometimes. So that repetition you know what's coming up. You don't necessarily need to read the question, look at the lady and ask her in your own way of asking' (M5.32)

Having to repeat procedures (Mi.1, N1.20) and/or past experiences (M2.25), for instance, meant becoming familiar with the tasks at hand for the students in this study, and which supports the notion that repetition enhances performance (Verfaellie *et al.*, 2008). Whilst this might be true for many people with or without dyslexia, this is important for those with dyslexia since dyslexia is associated with poor short-term memory and has implications for practice.

3.14.5 Self-awareness; safety conscious; mentor and staff support

The students' ability to cope seemed to have been enhanced by their being self-aware and vigilant (Chapter 4 Section 4.1). There were also claims that they had very good staff and mentors support (Section 4.7) all of which formed part of the coping strategies they used when working in clinical practice so are discussed in Chapter 4.



3.15 Summary

The presentation and brief discussion of the findings suggest that the students who took part in this study appeared to have good insight into dyslexia and how it seemed to have impacted on their practice both negatively and positively. They were for instance able to articulate the challenges they faced and which led to the generation of several themes which were grouped under core category 1 (Figures 3a,1, p.73) namely 'the perceived impact of dyslexia on the student'. The themes grouped under that heading were 'documenting is challenging; difficulty with reading; slow at tasks; poor short-term memory; stressful; multi-tasking; difficulty with numeracy; poor organising skill; disclosure; confidence; labour care provision is challenging; safety issues; practice is strength'; and 'safety conscious' (Figure 3b, p74). However, the issues related to documentation appear to be the areas they were most concerned with. They were also able to identify and discuss their strengths such as being creative, caring, and conscientious, with very good interpersonal and problem-solving skills. Comments in the portfolios, which were written by their mentors, validated some of the students' perceptions of themselves although this was not always the case. There were times, for instance, when the students perceived themselves as slow, and or lacked confidence. Irrespective of the context within which either the nursing and/or the midwifery students worked, some of the challenges they experienced did also raise issues of safety. However, none of the mentors' comments were suggestive of errors made by any of the students. Moreover, many of the mentors' comments suggest that many of the students coped very well, were competent, confident, reliable, used their initiatives and were excellent team workers.

The students' knowledge of dyslexia and their heightened awareness of their strengths and shortfalls, probably led them to become hyper-vigilant and to develop simple, yet effective coping strategies, and which are discussed in chapter 4.



CHAPTER 4

RESEARCH FINDINGS II: THE STRATEGIES DEVELOPED AND / OR USED TO MANAGE THE IMPACT OF DYSELXIA

4.0 Introduction

The perceived negative impact of dyslexia led the students to develop and/or use other strategies to help them cope in clinical practice. This formed the second core category, namely; 'Strategies used to manage perceived impact of dyslexia' (Figure 4a).

4.0.1 Strategies developed and/or used to manage perceived impact of dyslexia on the student in the clinical practice areas

Several themes were generated under this second core category, and which reflect the strategies that were developed and or used by the students to help them cope. These formed the sub-categories for the second core category and are shown in Figure 4a below.

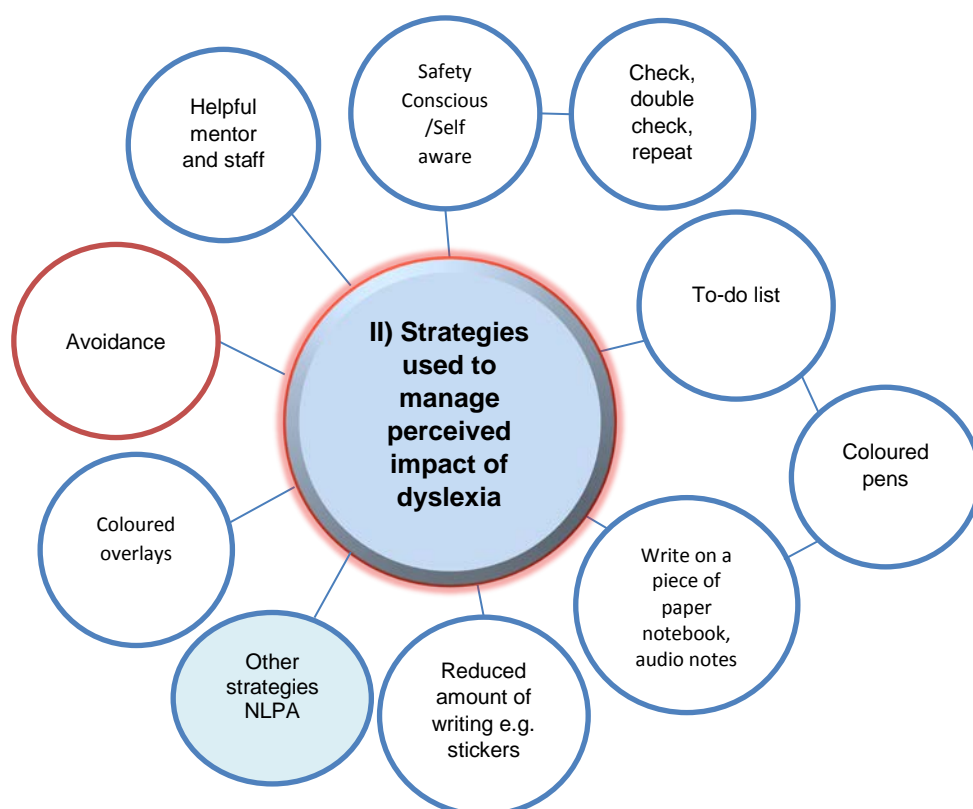
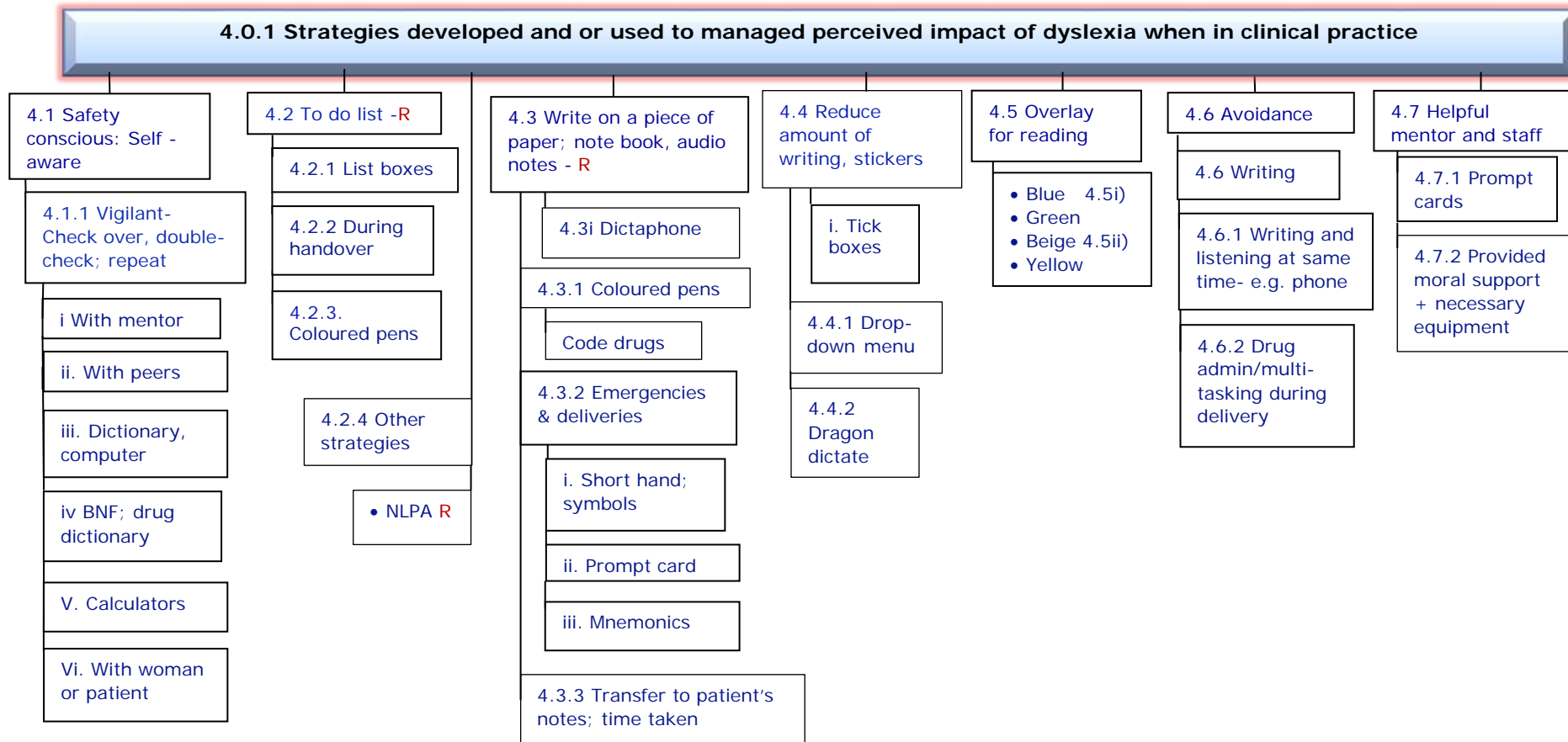


Figure 4a: Main, core and subcategories. Strategies developed or used by students
Key: ○ = Adaptive coping ○ = Maladaptive strategy ○ = Miscellaneous; single case



Figure 4b: Core categories, and subcategories of themes generated



R = To help student remember

There were many subcategories of themes which also reflect other strategies used, when and why they were used as appropriate and are outlined in Figure 4b above



4.1 Safety conscious: self-awareness

Many of the students seemed to be very safety conscious and which might have been due to their heightened self-awareness both of their strengths and of their shortfalls, the latter of which are reflected in the comments below:

'That's so... something I'm so self-conscious about. ...as a first year you're not taking much initiative. Someone's just going to pass you a wrist band and say, you know, write codeine on that red wristband. I'm thinking well there's no opportunity for me to go away and find out how it's spelt. You need to just do it...but then as soon as I get out of the situation check-up...' (M1.15)

'I do get my words mixed up sometimes in my sentences, but I am normally very good at recognising that very quickly' (M2.28)

'I know that's one of my weaknesses, so I make sure that what I've written and want and understand is actually what is asked' (N2.64)

'I like to know that I have completed something and I have completed it properly. I think that if I don't complete something properly they might say it's because she is dyslexic and I don't want people to say it because I'm dyslexic' (N3.21)

'Things like spellings if someone is telling me quickly some sort of disease that I can't spell then I would probably go up and look that up and make sure that's the right spelling and the right kind of word' (N4.29)

'I don't like to hand in work that's not good so I keep on re-checking. I wouldn't hand in anything that I didn't think was up to standard' (N7.23)

Apart from not wanting to make mistakes, it appears that student N3 does not want any possible mistakes she might make to be attributed to having dyslexia.

4.1.1 Safety conscious: vigilant, check or double-check

The students' knowledge of dyslexia and heightened understanding of the challenges they faced in placement areas, and the heightened self-awareness of their weaknesses, seemed to have helped them monitor their work to help avoid and/or minimise mistakes. Some of the comments below reflect how the students monitored their work, aspects of which imply hypervigilance.

'I am quite OCD with my notes... I check and I check them three or four



times before I will happily sign it and then put them back for someone else to check' (M2.66-67)

'I would either look it up, refer back... or look in the notes at how someone else had spelt it' (M3.12)

'... If I'm not sure about whatever it is I won't give it until I'm sure it's matching up with the prescription.... for me that helps' (N1.73)

'Yeah I was OK with it. I think the medication generally I'm not too bad, I don't struggle too much with it. I just make sure I double check myself all the time so as not to make mistakes' (N4.103)

'One of the things that I struggle with sometimes is if the doctors have written the meds card and it's completely illegible I find it quite difficult to understand and if drugs names are very similar. I know that I struggle with that so I'm quite cautious to check and I'll have the drugs card open and I'll actually have the box and be looking at the letters so that the letters match up because I struggle to say the names of the drugs. I tend to look at them more of like pictures rather than words' (N5.55)

'I have to definitely double-check all the time. I will end up writing it in mls (millilitres) or milligrams or little things like that I might miss it out' (N6.93)

'Whereas perhaps people may check themselves once before they give medication or sign off medication, I might do it two or three times just to make sure that it's correct' (N7.73)

The above comments suggest that the main areas of work the students double-checked were in relation to their written work and that of drug administration, both of which were identified areas of concern in clinical practice (Chapter 3, Sections 3.2, 3.8, and 3.11).

4.1.1i Double-check with staff

Other comments from the students also suggest that they had their work double-checked by their mentors or other qualified staff:

'So if someone says you need to do ten milligrams of this and then I'll write ten and I'll go just double-check; you meant ten milligrams? Yep. I follow that double-check, triple check process in the sense that because I know that's one of my weaknesses ...' (N2.64)

'I will say to nurses, I'm not afraid to ask like 'how do you spell that' (N3.26)



'Never afraid to ask questions, which I believe has helped her a great deal'
(N3.P4)

'I try and get round that by saying it back to the person' (N4.94)

'Yes, I have to, I find that with that I have to ask the person handing over, which is usually a qualified Staff Nurse, I have to ask them to repeat themselves sometimes which I used to be really nervous about. Obviously, we all know what it is like on a ward setting, everyone is in a rush, in a hurry and then there's you... excuse me can you repeat that? But I've learnt that I have to now, otherwise I will miss something out, so I just have to keep sometimes asking them to repeat to make sure that I have it written down'
(N6.20)

You can't help but think that you know they are there! If you don't know you can also just go and ask....' (M4.72)

'So sometimes I may say to my mentor I want to say this, how would you write it?' (M5.28)

The mentor's comment in the portfolio (N3.P4) seems to support student nurse 3's claim that she is not afraid to ask questions. Apart from that, statements made by N2.64, N4.94, and N6.20 suggest that double-checking also sometimes meant repeating a word and/or a phrase back to the other person or asking the other person to repeat what they said in order to validate what was said or what needed to be written. This is good practice as it helps to check understanding of what has been said (Burnard, 2005; Crouch, 2005).

4.1.1ii Double-check with colleagues (peers)

Others double-checked their work with their colleagues, as reflected in the following comments:

'Hand write it and if I'm not sure how to spell something, I'll just ask one of my colleagues who won't know how to spell it either! (Both laugh) And then we'll have a go anyway! We will write it on a bit of paper and see which one looks right!' (N1.93)

'Yeah, I'll ask if I can look at their handover and see what I have missed and then I'll go what does that mean. I've missed it but you have written it so I don't know what that means' (N6.74)

The above statements suggest that the students focused on spelling and drug administration as well as on information that they might have missed, particularly during handover. However, spell checking with colleagues did not always ensure they had the right spelling so fell back on other means of spell checking.



4.1.1iii Spell check with computer or dictionary

Some of the students spell checked their work using the computer or a dictionary as stated below:

'If I'm not sure if I've put the right word in, I'll check it on google and go back and make sure I've got the right word' (N2.25)

'Yeah spell check and change the order of the sentence and ask people' (N5.24)

'I have to whip my dictionary out to look up certain conditions or to do my spellings' (M2.19)

4.1.1iv Check with British National Formulary (BNF)

Others used the BNF to spell check names of drugs and other information regarding any particular drugs such as route and dosage of drugs where necessary:

'Find the BNF, sort it out, do it again' (M1.15)

'I could pop out of room and check with BNF before I wrote wrist band' (M1.17)

'They are fine with me using BNF at all times now as well, it is best practice' (N1.72)

'So it's a case of going to the BNF or using the internet or using staff resources to help me to complete them if I need' (N3.28)

4.1.1v Use Calculators

Others used calculators to help them with or to double-check (M2) their calculations of drugs during drug administration:

'When I'm doing drug calculations, I have to have a calculator with me. I need one. I can't do numeracy off the top of my head' (N1.71)

'Yes I do use (calculator). Again the thing with drug calculations is that it's a very straight forward process to follow. As long as you follow that process you should always get the right answer. It works well for me in that I can stick to that process' (N2.97)

'There is usually a big book of all the antibiotics, what is dispensed and it kind of does all the calculations for you. I do find that I have to go in to that a lot and then work it out and have a calculator there. It takes me a little bit longer but I'm getting there' (N6.90)



Only one of the student midwives (M5) expressed that she had difficulty with drug administration. However, she did not mention the use of a calculator. Another student midwife (M2), who did not seem to have a problem with mathematics and/or with drug calculation did, however, make comments that suggest she used a calculator when administering drugs on some occasions to double-check and validate her calculations.

4.1.1vi Check with patient: mother

Checking for correctness during assessment and on aspects of the care being planned and/or given with the patient (or with the pregnant woman or mother) helped to ensure that they were on the right lines. It was another form of coping strategy used by some of the students as reflected in the sample statements below:

'I'm going to listen in with this pinard but if you say it's there you're right and I'm wrong... (M3.14)

'With midwifery I can believe it's one thing, but the mum is the one experiencing it. So, I think maybe dyslexia is suited to midwifery' (M3.15)

'I tend to go back to the patient and sit with them and say; is this fair, is this what you think...?' (N1.10)

'What I tend to do is re-clarify just to make sure I have the information right. For me again that is a strategy that I use' (N3.38)

It seems then that the students were hypervigilant in that they double-checked their own work and or got their work checked and validated either by their colleagues, mentors, other qualified staff and/or their patients. Where necessary, appropriate technological equipment such as computers, and calculators were also used

4.2 'To-do lists; tick list boxes' (R)

The 'to do lists' with tick-lists boxes were also used by some students as these helped them to remember what they needed to do. Their use also meant less writing for them as shown in the comments below:

'When you have got the tick box what you have to say is written there in a lovely example. You think I don't need to think about how I explain this; I tick that box because that applies' (M5.26)

'I just put important points and times that I knew things had to be done by. So it's a sort of like a tick list basically for myself' (N1.66)

'I like to write a little list for the day of what's to be done so that I don't forget anything' (N3.13)



4.2.1 During handover

Particularly at handover, the students liked the use of already prepared handover sheets (by staff) on which they added the tick-list boxes themselves and this is reflected in the comments below:

'I write lots of things down... so as they are handing over I am already making my boxes and on my handover sheets, it's probably ridiculous and sad, but once I know what bay I'm in. I do a little box; I put intro box, daily check, mum check, baby. I have a little list of boxes; and I tick, tick, tick. So then when anyone ever says anything I can look at my handover sheet at a glance and say yes, all six ladies in that bay they have all had their baby checks, all had their postnatal checks, their notes have all been written. She is ready to go, she's ready to go, she is waiting on the paediatrician. So, I know where I am at a glance' (M3.52)

'On the handover sheet that I have got, for example, I will write next to them weight and then an empty square and then that will lead me to tick it when I've done it. I just give myself tick boxes and then I can visually see what I've done and what I haven't done' (N6.27)

Although having a 'to-do lists' might be common practice amongst nurses and midwives with or without dyslexia, it is particularly useful for the individuals with dyslexia (with poor short-term memory and/or poor organising skills). As noted by the students in this study, for example, 'to-do-list helped them to remember what they needed to do and/or to get organised, as well as to prioritise their work. The already prepared handover sheets also helped to reduce the amount of writing they had to do.

4.2.2 Use of different coloured pens (R)

As mentioned in Chapter 3, some of the students had short term poor memory and which impacted on aspects of their practice because they were at times forgetful. For some students, remembering information as well as what to do was enhanced by the use of different coloured pens:

'I've got uni ball pens. I got them from my dyslexic tutor. I obviously don't use them in my documentation pack but on my handover sheet I use them...' (N3.73)

have my to-do list in blue, then all my '... done list ... to go into my evaluation' in green and I just tick them off as I go. I don't know why it just stands out; it's brighter and reminds me of things.' (N3.75)



'Usually I used to carry a notebook which helped but now you get a handover sheet on the ward. So I find it useful with different colours to write next to, I do tick boxes. For example, if I am doing a care plan for a patient, if I have done a turn chart or I need to do their weight' (N6.14)

It's just writing my own notes in different colours makes it stand out and more interesting, it appeals a bit more to me rather than a big black and white book' (N6.16)

'I feel as though I'm quite confident on the postnatal ward, I can just get on and do my stuff as long as we get handover sheets with ladies names on. On the handover sheet I will colour code things. Things that have been done go in black and things that need to be done in red with a box next to it and when I've done it I will tick it' (M5.95)

'...If they tell me she is a day one section so she needs some bloods doing today I'll put in red with a small box next to it and tick once I have done that ... so it stands out' (M5.97-99)

Although only three of the 12 students who participated in this study reported that they used colour for their notes during handover, it raised one's awareness of the importance of the use of colour for some individuals with dyslexia and has implications for practice.

4.2.3 Other Strategies: Neuro-Linguistic Programming Anchoring (R)

NLPA (Elston, 2012) was another strategy used by one of the students to help him remember processes involved in procedures as reflected in the statement below:

'...So like if I touched my shoulder or pinched my finger or crossed my fingers or did something physical in association with what I needed to remember my brain coded it better, it stayed in there better' (N2.33)

'...The way I remember and my hands will do the action, that's how my brain remembers it. It remembers it by the physical actions...(N2.36)

Although it seemed effective for the student, it raised safety issues. This is discussed further in chapter 6.

4.3 Write on a piece of paper, notebook, or in diary (R)

Another strategy used by the students to help them remember things related to patients' care was writing information down as soon as possible during and after an event on a piece of paper (paper towel or scrappy paper) or in a notebook or diary:



'I can confirm things or write on paper towel... and then copy up in neat once you've got a moment' (M1.22-23)

'I would write my observations down on a scrap piece of paper.' (N1.21)

'If I don't have my notebook I end up using scrap paper, printer paper and my pockets are full by the end of the shift' (N3.119)

'If you change a patient and there's a sore and I applied a cream, I put applied cream, slight sore so then I know to write that in my care plan and I know to transfer it to my evaluation. For me it's documenting and bullet pointing' (N3.68)

I've got a little note pad and I just pop things in it, so I can remember for when I get home. So I thought this time we need to do these obs, this time we need to do these catheters, this time...so I'd have a little thing in my book and I'd tick them off as I went along which helped me time manage. So I guess that's a coping strategy isn't it? (N6.10)

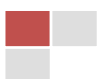
'For things that I've got to remember perhaps for my next shift and I will also have everything written down to handover to anybody that needs to know it. I've learnt over the years not to always trust my memory so I've got a strategy to not to have to.... I've got a ready reckoner there which is...' (N7.98)

Writing on a piece of paper seemed to have served as a point of reference and/or information to be neatly transferred into the patients care plan or notes later on as reflected in the above comments. Apart from time management, it seems that writing on a piece of paper and/or in a notebook also helped the students to remember things such as daily routine procedures. The comments made by two of the students above (N6.10; N7.98) also suggest that some of the students made notes for use whilst on the ward or community areas. They also made notes to take home to be used as a point of reference over long term.

4.3i Audio diary; Dictaphone

To help him remember information, as well as reduce the amount of writing, another student took notes using Dictaphone, and keeping it as an audio diary:

'I just put the Dictaphone on and make mental notes. I tend to use it for just quick memory stuff. Bits and pieces that I might need to remember, or relate back to on previous dates. Then I'll just quickly jot it down on the Dictaphone rather than writing notes' (N2.88)



4.3.1 Use of coloured pens

Two students also made notes either on the spelling of the names of drugs, and/or on their types, usage and their dosages using varied coloured pens to study them at home and for use as point of reference when administering drugs:

'The drugs charts and the rounds for me now are fine but again it's the words of the drugs. Sometimes I can't say the words. I'll try and say them and know that's not right. Because there are so many that can be quite difficult but again it's taking the labels home. ...and I'll write in my own words little bullet points in my coloured pens and then I remember it a lot better than on the BNF and the bits of paper. To me that just looks like a bunch of words' (N3.91)

'So I will get an A4 bit of paper, put a title of a drug, so paracetamol at the top in red, then in red I've got route, so oral in a different colour. Then the dose in a different colour as the dose and then I stick it on the wall and a whole wall of my room is covered in A4 bits of paper colour-coded. So all analgesics will be a certain colour, all anti-emetics will be a colour. So when I go to the drugs trolley and somebody says can you get some... I'll think what colour was that on my wall and I'll think it was green it's an anti-emetic' (M5.122)

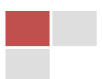
Possible safety issues re use of colour to help remember and identify drug types and dosages (M5.122) are discussed in Chapter 3.11.3i. However, it highlights the importance of the use of varied colours for certain individuals with dyslexia since it seems to enhance their ability to remember things so has implications for practice. The above comments also reaffirm the notion that sometimes the students made notes to be used as a point of reference over long-term.

4.3.2 Emergencies

According to the student midwives, however, they chose to write on a piece of paper when dealing with emergencies:

'Only in emergency I would use my paper' (M2.46)

'I tend to do the relationship first. If they are that quick you just get a bit of paper and just note the times.... when you have done the delivery, you've got a lady coming in fully say and its quick labour, you deliver and you haven't written a thing, you go back and then it's trying to remember it in logical order. I tend to write it down on a bit of paper again so that when it goes into the notes its proper' (M4.37)



'Again, I think they are OK. Again, I just do the whole grab a piece of paper and note the time and a word so it's not taking me away from the woman but I've still got my documents. I think they are OK. I've had a few emergencies!'
(M4.59)

Further exploration on this suggests that apart from re writing the information from the scrappy paper properly into the clients' notes the scrappy paper is also kept in the notes in line with policies which is good practice.

4.3.2i Dyslexic Shorthand; symbols

Three of the students said they used dyslexic shorthand to jot down information on a piece of paper, sometimes prior to writing it out fully into the care plans or notes. For two of the students this meant the use of symbols, one of whom used them as part of real notes, and the other to help her remember words in relation to a body system such as use of heart symbol for cardiovascular system:

'So if I was speaking to a patient I would ask the relative necessary questions, write it out with my shorthand if you like and then I would possibly find somewhere quiet to type it out to my standard' (N7.11)

'A couple of the midwives have taught me, almost a dyslexic shorthand by doing symbols for certain things ...So you do a heart for heartbeat. So rather than writing it all out because if I miss it I can put a heart in; put what it was and that is a lot more understandable to me to than transcribe it into my actual notes' (M2.46-47)

'Yes so rather than missing out and just putting 132 for a foetal heart by putting a heart and then a number they know what it means. So that's almost a strategy that I have picked up from a lot of the midwives in the hospital. So it will be F♥ (foetal heart) or M heart for maternal heartbeat' (M2.48-9)

'...So like cardiovascular ones, cardio that's the heart, I put a symbol to these, pulmonary things like that. (M5.23) ...Symbols, just as in cardio, you think of a heart. If it's a long word that begins with cardio that I don't understand, I will, instead of thinking I have no idea what that is about, I will think well hang on cardio is in the word therefore it must relate to the cardiovascular system, the heart, circulation, things like that' (M5.25)

One of the student midwives' statement suggests that she was taught to use symbols by a couple of midwives (M2.46). However, another statement she made (M2.48) implies that



many other midwives (with or without dyslexia) also use symbols. She also seems to use symbols for note taking as well as in the mothers' real notes and/or care plan.

4.3.2ii Use of prompt cards

Another student midwife commented on her use of prompt cards:

'Yeah it's a card and she has got 28 week appointment and it tells her what she needs to do so that she doesn't forget anything because she knows what to write down, such as, she should be recording any blood history that has been taken. And that's a good strategy for her whereas a lot of midwives don't have that. (M2.35) ...Yeah and she has passed it to me so that's a really good technique that I have picked up from her' (M2.36)

Interesting to note that the mentor who taught her the use of prompt cards also had dyslexia.

4.3.2iii Mnemonics

The use of mnemonics also helped one student to remember what information to transfer into the patients' real notes as explained below:

'I'd make maybe a mnemonic. So think about delivery I would put 'D' and then time 'T' so 'DT', and then third stage DT3, something like that. Mnemonics has helped me quite a lot' (M5.84)

4.3.3 Transfer to patients' notes

The students' comments below also imply that the idea of taking notes in the above formats was to allow them to remember what to transfer into the patients' notes and/or care plans properly:

'I tend to write it down on a bit of paper again so that when it goes into the notes its proper' (M4.37)

'...Write it out with my shorthand if you like and then I would possibly find somewhere quiet to type it out to my standard' (N7.11)

4.4 Stickers and tick lists (reduced amount of writing)

Since having to document a lot of information in the patients' care plans and notes was found to be challenging by nearly all the students in this study, the use of stickers prepared with appropriate information for a particular aspect of care to be stuck in the patients' notes, or information printed in the notes with a tick list, seemed to have proved useful for some of



the students:

'The name and address and the hospital numbers stickers help. I like those a lot! One of the first things I had to do as a student was how to print more stickers' (M1.27)

'It's the same with vaginal examinations in the labour ward now we've just got a sticker. Tick, tick, tick that many centimetres' (M1.50)

'...We have stickers for a lot of stuff, CTG interpretation is on a sticker, VE is on a sticker' (M5.88)

'It's actually OK for postnatal care because there are postnatal checks stickers. So you put these big purple stickers in their notes and you tick. So it's already written for you. So there is a box that says what day is this and a box that says how is this baby being fed and then, are their eyes clear, is their mouth clear, is their skin clear, is their cord clean and dry. You make a few comments as well but mostly it is tick boxing. So there's not a huge amount of writing' (M1.49)

'So they had the initial assessment, then you had the working risk, there were quite a few other parts to it and there was a tick list that you would do to make sure that you had completed the package for the person' (N4.23)

'Yeah it (tick boxes) saves time' (M5.81)

4.4.1 Drop-down menu

Another strategy that was in place to help reduce amount of writing and which was used by one student was the dropdown menu:

'Yeah we would have a drop-down to say what is this for – is this for psychological issues, physical issues, education, things like that and then you would pick the one that fits the care plan, the particular bit you are writing. Then it would ask you another drop-down bit. The actual physical typing bit is quite small. So it's about three or four sentences' (N2.20)

Like the dropdown menu, the use of stickers and tick lists were strategies used by the hospital staff as part of their record-keeping and which allowed the students to fill in gaps and/or tick or select appropriate answers only.

4.4.2 Dictaphone; Dragon Dictate

The use of Dictaphone as an audio diary, and/or the Dragon Dictate as audio reflective



diary or to make notes, also reduced the amount of writing done:

'Then I'll just quickly jot it down on the Dictaphone rather than writing notes'
(N2.88)

'I write reflective accounts if something's been bothering me or I think I need to improve at work. I will just speak into my Dragon Dictate, and I'll just say 'on today's shift Mrs S had this going on and I think I could have handled this better' (N1.89).

'Everything I do is confidential; you'd never be able to... I always use Mrs S or Mrs A or Mr B, but I know who it is and through reflection I'm able to develop as a practitioner. So my diary is very much reflection, which is a bit weird but works for me' (N1.90)

The use of any strategy to reduce the amount of writing the student had to do seemed a great idea. However, problems can arise when particular items such as stickers get out of stock or the student moves to another area of work and suddenly has to do all the writing, as noted in the comment below by one of the students:

'This happened to me a couple of weeks ago; they said we have run out of stickers; you will have to hand write it. I used abbreviations to remember the spellings. Usually it's all on the stickers for you' (M5.88)

It is noted from the above statement that, although the use of certain strategies appeared to be helpful, some setbacks could occur with possible frustration where they suddenly become unavailable.

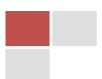
4.5 Coloured overlays or backgrounds (for reading)

As discussed in Chapter 3, nine of the students in this study reported that they had difficulty in reading either words and/or numbers whilst working in the clinical areas. According to five of those students they used coloured overlays to help them with reading.

4.5i Blue and/or green

Some of the students preferred and used blue and/or green overlays or background for reading:

'...We put different colours on and certain colours like red and white backgrounds were horrific. I really struggled to keep the words in place, whereas blue and green overlays made it stay still...they are really good'
(N1.41)



'And I take those to work and they are really good. So that was something I hadn't considered before. On my laptop at home I have changed the background to be blue on the word documents so when I'm typing I can read off the screen. It seems to stay still' (N1.44)

'It's like a 'bluey' overlay.... I do have a full A4 one but that one is just easier to carry around' (N2.69-71)

Another student (M4) stated that she also used an overlay and although she did not state which colour, she had a blue one with her at the time which she showed to me.

4.5ii Beige, cream and/or yellow

Others preferred and used beige, creamy and/or yellow overlays or backgrounds:

'I actually like more sort of beige backgrounds, sort of a beige creamy background' (M3.34)

'I have just been for my needs assessment last week and I have found that using yellow paper... that is much better, thank you. But in everyday work I am quite happy to use white paper, but if I'm given a preference I'll have yellow' (N7.106-7)

It is clear from the above comments that some of the students used different coloured background other than white to help them read although what was not clear or explored is whether or not they each had any visual problems as well. However, student nurse 1's comment implies that she might have a visual problem which might explain why the use of colour other than white background kept the words in place for her.

4.6 Avoidance

The following comments also suggest that some of the students avoided writing due to feeling embarrassed about the way they write:

'I did avoid being quite embarrassed about my writing... I just don't write. So, I've never in the three years written on flip chart paper; I've always managed to avoid it' (M1.11)

'I think this is obsession with paperwork when you are someone like me who spends a lot of time avoiding anything to do with paperwork and anything to do with writing; I prefer the more hands on, practical side' (M3.45)



4.6.1 Avoided writing and listening at the same time

Others avoided tasks that involved writing and listening at the same time, such as answering the phone as it also involves listening whilst writing down notes at the same time:

'Whilst I'm writing, it's hard to listen and write at the same time. I tend to have the conversation and then write it. O I can't do the two at the same time very well' (M4.33)

'...I think that happens on the ward all the time when anything is going on, when other things are going on, but the best thing again is communication I talk to my patient and try and ignore everything else that is going on' (N6.69)

The statement made by the student nurse (N6.69) above was an answer in response to a question during interview to explore what the student does when the telephone goes whilst working on a busy ward. The statement by student N6.69, therefore, implies that she had difficulty dealing with more than one thing at a time so she avoided answering the phone.

4.6.2 Avoided drug rounds or administration or multitasking during delivery

According to another student, she avoided multi-tasking such as participation in drug administration as much as possible, as well as looking at the clock whilst performing a delivery of a baby:

'Medicines management is my least confident and favourite part of the whole midwifery care. Purely because there are so many different medicines, so many different doses and I can very easily get one of those wrong and if I do that is majorly detrimental, therefore I avoid it at all costs' (M5.117)

'Yeah in the first year. It's like putting off something that you really don't want to do. I kind of think now it's crunch time you are in your third year you must get to grips with this' (M5.119)

'Nine times out of ten when I'm delivering I don't look at the clock. So I will say to me mentor when we are filling out the documents, what time was delivery' (M5.77)

The reason for the use of avoidance as a coping strategy in certain situations seems to be that of embarrassment about writing (M1) and the lack of confidence in administration of drugs (M5). Whatever the reasons however, the use of a maladaptive strategy such as 3, avoidance has implications in relation to safety and has already been discussed in Chapter



Section 3.11.3. This is further discussed in Chapter 6.

4.7 Human resources: mentor and staff

The support from mentors and from other qualified staff from the practice areas also helped the students to cope in different ways. These were expressed in comments during the face-to-face interviews and in the comments made by the students in their practice portfolios:

'I have greatly enjoyed placement. Mentor allowed me to grow as a student'
(N2.P2)

'And they do and they try their best to do everything and I have had amazing mentors. I can't fault any of them' (N3.114)

'They (mentors) are very understanding' (N1.48)

'I have had mentors that have not necessarily let me get on with it but they have been chatting to somebody else and I've just got on with it. I have put the packets beside them because there has only been a couple and then shown them and they have been yeah that's fine, that's really good. That's sort of given me confidence oh can I do this! It's nice and then I'll get on with it, I'm quite happy doing it then because they have been relaxed and trusted me to do it. That has then allowed me to have the confidence to say well actually I can do this and I don't have any problems with it' (N4.112)

'My last placement that I was on actually she was the completely opposite extreme and said how can I help, what do I need to do differently? There were two of us on the placement at the same time, my friend, who is not dyslexic and me. My mentor did go out of her way to mentor me differently and listened to what I said and it was actually a real breath of fresh air because I don't normally get that! It's nice for the mentor to actually want to help you and not to see you being dyslexic as a hindrance or as a oh God'
(N5.70)

'...A lot of the newer qualified midwives were diagnosed with dyslexia during their training, so they pass on their coping mechanisms' (M2.68)

'I think I've probably only had about two mentors who have understood that I've had dyslexia and one of those mentors herself had dyslexia. She is the only one that's really sort of...she re-words questions to help me... other than herself, apart from when mentors pick up spelling and I say well yeah I'm trying my best to get on top of it; I am dyslexic. ...so it's not an issue now that they know that' (M4.65-66)



Although student midwife 4's (M4) comment suggests that her mentors had been supportive, she seemed to have found the mentor with dyslexia perhaps more empathic.

4.7.1 Mentor helped me develop and use prompt cards

A comment from another student midwife also suggests that her mentor who also has dyslexia taught her how to develop and use *prompt cards*, a strategy she used to help her remember what she needed to do at follow up antenatal clinics:

'Where I work, the midwife I work with is dyslexic; she has a lot of prompt cards on a board which basically tell you what you need to do at certain points (M2.34)

'Yeah it's a card and she has got 28 weeks appointments and it tells her what she needs to do so that she doesn't forget anything ...'(M2.35)

'Yeah, well obviously, you are telling me she has got dyslexia so it's probably her way of coping, trying to remember what to do' (researcher)

'Yeah and she has passed it to me so that's a really good technique that I have picked up from her' (M2.36)

As noted above, the student described it as a good technique (M2.36) as this allowed her 'to know what' she 'needs to do' (M2.37).

4.7.2 Moral support and necessary equipment provided by staff

Comments from some of the students also suggest that moral support as well as equipment received from staff at the university also helped them to cope in the clinical areas as reflected in the following statements:

'I was quite surprised on being an adult learner as to how much things have developed and moved on in terms of what I would refer to as special educational needs. I know it's referred to differently now. Being somebody who, at my school age, was kind of discouraged and not really told that I was able to do things and that nursing was going to be a big no-no because I would kill somebody, I would give somebody the wrong medication, or I would give them wrong dosage because I have trouble. There was a lot of negativity surrounding it, rather than drawing on the more positive elements. I was actually quite surprised in coming to university in the sense of how much understanding and support there is' (N2.101)

'There are things that can be put into place to help and I've utilised those things and I'm doing a lot better' (N1.54)



'I've got uni ball pens. I got them from my dyslexic tutor. I obviously don't use them in my documentation pack but on my handover sheet I use them' (N3.73)

'I was actually given those from the university' (Referring to overlays) (N1.40)

'One of the first big lectures we had in the big lecture theatre was from a lady from the student support and she outlined that in general terms people with dyslexia tend to be quite empathetic, quite understanding; and nursing is an environment that tends to attract people with dyslexia... It was nice in that it never seemed to be an issue whereas the other jobs I've had as soon as I've declared it, all of a sudden, it has become a problem... I've been pleasantly surprised by how much and by how far it has come. People's understanding of it now as well' (N2.102)

The above comments (N2.102) also suggest the student felt welcomed right at the onset of his training and education as a nurse due to the empathy shown by staff. This is particularly interesting as it also seems to imply that some of the controversy regarding the topic (dyslexia) in nursing, seems to be dissipating and that the requirement by the Equality Act (2010) to put into place activities that promote equity are being met by staff and by the university.

4.8 Summary

The findings discussed to date suggest that the students' insight into dyslexia, and the heightened self-awareness of their shortfalls, led them to become hyper-vigilant to help them avoid and/or minimise mistakes. This seemed to have paid off as some of their comments suggest that they could spot and correct their mistakes as they occurred.

In addition to that, they developed and used simple and yet effective strategies as well as used other resources, some of which were readily available and or provided as adjustments for them. These, coupled with good mentors and other staff support, helped them manage the perceived impact of dyslexia on their practice when working in a non-stressful environment.

Many of the strategies they developed and/or used, and the poster guidelines which were evaluated as part of this study were described as very good, helpful and or useful, which formed the third core category and is presented and discussed in chapter 5.



CHAPTER 5

RESEARCH FINDINGS III: PERCEPTIONS ON THE STRATEGIES AND OR RESOURCES USED

5.0: Introduction

In chapter 4, the findings on the coping strategies developed and used by the students to help them overcome any difficulties they encountered as a result of dyslexia in the clinical fields were presented, aspects of which were briefly discussed. Part of the aims of the research was also to find out the strategies that were perceived to be good, helpful and/or useful (Chapter 1, question 3, Section 1.10.2; Chapter 2). In order to achieve this aim, comments made on the usefulness of the strategies developed and/or used by the students were taken into account. It also involved an evaluation of the poster guidelines that were put together as a result of a previous research for mentors supporting student nurses and midwives with dyslexia in the clinical areas (Crouch, 2009; 2009a; Table 5a; also see Appendix 2H [p.293] for a copy of the original poster in question). This has been in use by mentors in the clinical areas since 2009, with the permission of the Deans in one of the schools at the time of its development.

All the strategies used by the students appeared to have been useful. However, some of the strategies were particularly highlighted by the students as good, very good, useful, and/or helpful. This included the evaluative comments on the poster guidelines and which formed the third core category (Chapter 3, Figure 3a III, p.72). This chapter aims to present and discuss this third core category and its sub-categories (Figure 5a, p.141). Prior to that, however, a brief introduction of the said poster guidelines and the aspects of those guidelines that were evaluated are given in order to give a better understanding of the findings presented in this chapter.

5.0.1 The poster guidelines for supporting dyslexic students

The poster guidelines were evaluated by the 12 nursing and midwifery students who took part in this study during the face-to-face semi-structured interviews. They were also evaluated by 22 mentors (qualified nurses and midwives who support students including those with dyslexia in the clinical areas), with the use of a brief semi-structured questionnaire with open-ended questions (Appendix 2F, p.286).

As noted on the said poster guidelines, (Table 5a, p.138; also see Appendix 2H, p.288), strategies that could be employed either by the mentor and/or the students with dyslexia have been identified and suggested in the right-hand column against the possible difficulties that a student with dyslexia might be presented with in the left column (Crouch,



2008; 2009; 2009a). The selection of those strategies was based on Crouch's research (2008) and on the available research on the topic in nursing and midwifery fields at the time of its development. Notably, many of the coping strategies developed and/or used by the students to help them overcome any difficulties they were encountering in the clinical areas due to dyslexia (Chapter 4), were similar to those outlined on the said poster guidelines (see Table 5a).

Table 5a: Strategies identified on poster guidelines for mentors supporting students with dyslexia

Guidelines for mentor supporting a student with dyslexia	
Problem	Possible solutions
1. Forgetfulness	<ul style="list-style-type: none"> • Repeat things where necessary • Encourage the student to develop strategies such as keeping a diary
2. Difficulty with spelling, grammar and writing	<ul style="list-style-type: none"> • Encourage the student to use audio-visual aids to help with spell checking • Check over the student's work and feedback where necessary
3. Documentation of forms and care plans	<ul style="list-style-type: none"> • Ask questions to ensure information relayed on written communication has been understood • Give the student time to complete documents in a quiet environment
4. Difficulty listening and writing at the same time	<ul style="list-style-type: none"> • Encourage the student to develop strategies for dealing with this problem, for example, to ask people to speak slowly and clearly when answering a telephone call, to ask the person on the phone to repeat the information to be written down and to get some clarification from the other person where necessary
5. Difficulty with reading	<ul style="list-style-type: none"> • Staff handwriting should be legible • Ensure information is on an appropriate colour background. Student may use an appropriate colour overlay to enhance reading. • Allow student enough time to read
6. Carrying out procedures	<ul style="list-style-type: none"> • The student needs to observe the mentor performing a task before being asked to do the same. • Give the student time to carry out the procedure after taking time to explain. • Show a finished sample/template where possible
7. Difficulty with numeracy	<ul style="list-style-type: none"> • Encourage the student to use appropriate learning aids such as a calculator and check through the work, giving constructive feedback • Supervise drug administration on patients
8. Lack of confidence/low self esteem	<ul style="list-style-type: none"> • Promote the student's independence by indirect supervision where appropriate • Give constructive feedback
9. Difficulty dealing with more than one thing at a time	<ul style="list-style-type: none"> • Avoid overloading with information • Encourage the student to write up a 'to do list' taking into account priorities

(Crouch, 2009; 2009a; 2010a; HEA, 2009)- also see Appendix H, p.288 for full poster content)



5.1 Helpful or useful strategies for students with dyslexia in clinical practice

Figure 5a, gives an overview of the strategies and/or resources that were identified as good, useful and/or helpful;

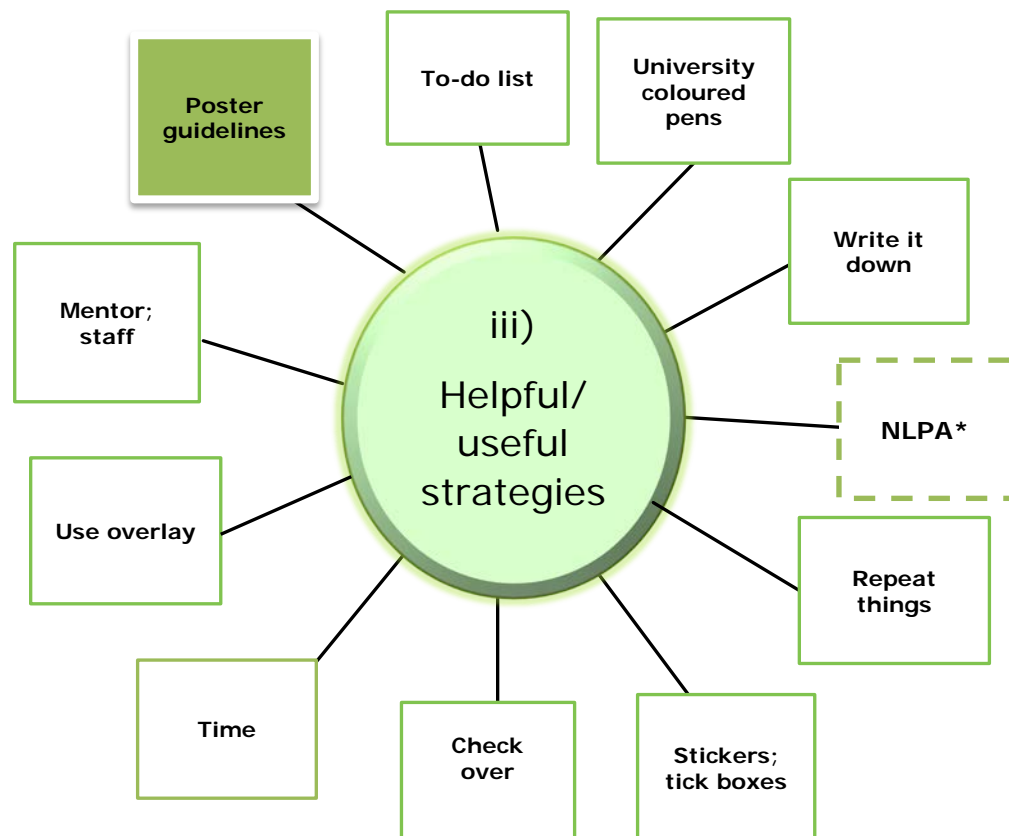





Figure 5a- Overview of helpful or useful strategies

Key for Figure 5a

Identified by both nursing and midwifery students = 

Identified by only one student nurse (although interesting) = 

Evaluated by qualified staff (mentors) and by nursing and midwifery students 

Examples of comments on the above strategies are given in Sections 5.2 to 5.4. This is followed by examples of the evaluative comments on the usefulness of the poster guidelines in Section 5.5

5.2 Useful or helpful strategies: Memory joggers and organising strategies

As mentioned in Chapter 3, the students in this study seem to have perceived forgetfulness as one of the main impacts of dyslexia on them when working in the clinical areas, due to their having poor short-term memory. Some of them also reported having poor organising skills. Hence, some of the key strategies that were highlighted as particularly useful and/or



helpful to them were the 'to-do lists', 'university coloured pens,' 'writing it down' and use of Neuro-Linguistic Programming Anchoring (Figure 5b, p.140). These strategies seemed to have helped them remember what to do, as well as to get organised; so are grouped together.

5.2.1 - 5.2.4 'To-do lists; university coloured pens; write on a piece of paper, and Neuro-Linguistic Programming Anchoring': Sample comments

The following are samples of comments made by the students that suggest that they found the following coping strategies and resources particularly good, helpful and/or useful as memory joggers:

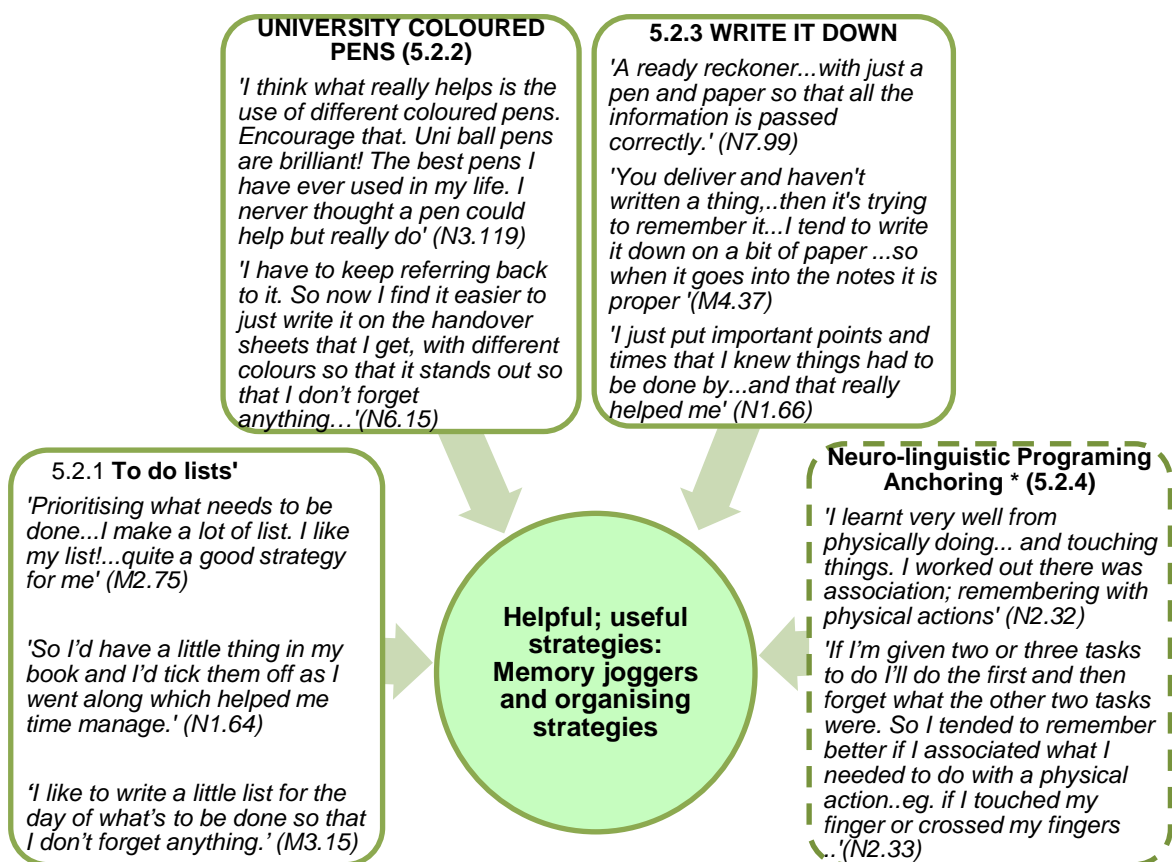


Figure 5b: Examples of comments by the students

Apart from playing a major role in helping the students to remember what to do, some of the identified strategies seemed to have helped them with their time management and with the organisation of their work.

5.3 Strategies that helped with documentation

Some of the main strategies identified as helpful or useful were also those that seemed to have helped the students overcome the difficulties they had in relation to documentation and record-keeping in the clinical areas, with particular reference to those that reduced the



amount of writing, or helped to ensure the recording of correct information. This included use of 'stickers or tick lists', 'repetition' and 'double-checking'.

5.3.1 -5.3.3 Stickers or tick lists; repeat things; check, double-check

The following are examples of comments made by the students which suggest that they perceived the above identified strategies as particularly useful or helpful in relation to challenges they experienced when record-keeping or documenting information of any kind in the clinical areas.

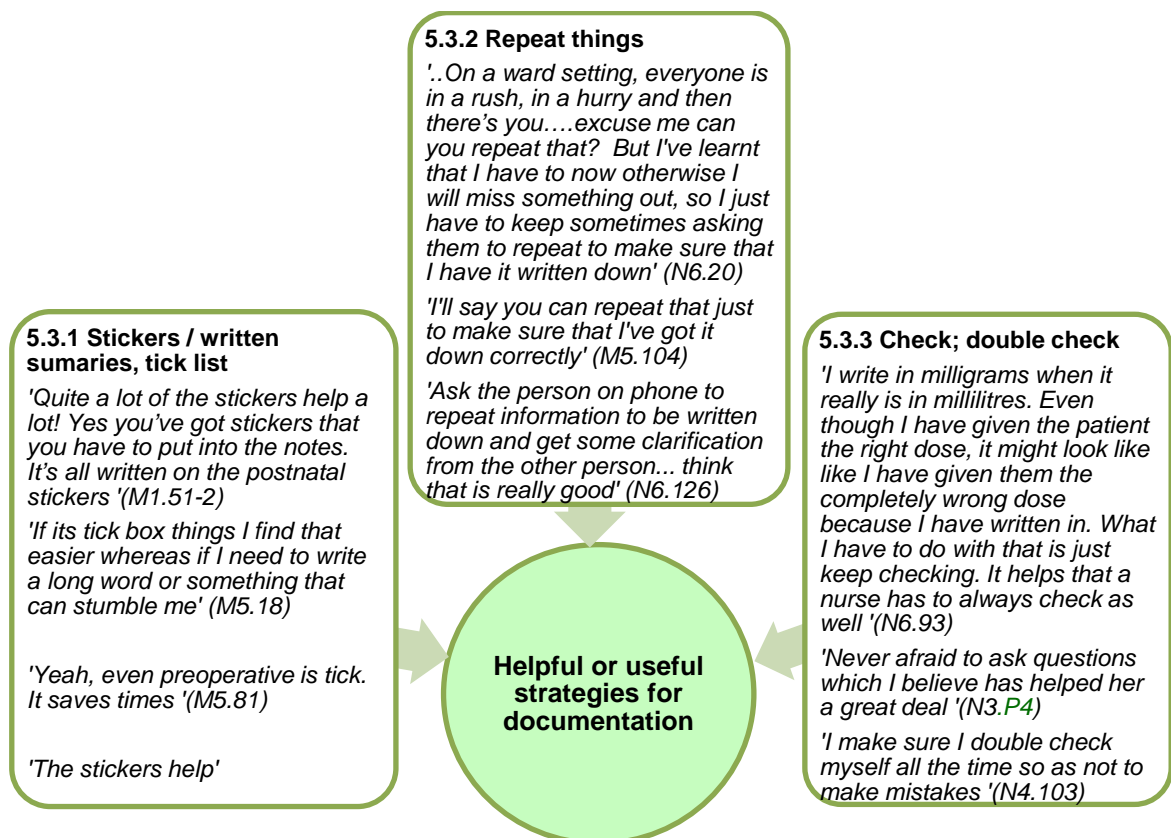


Figure 5c: Helpful strategies and resources for documentation-example of comments

Apart from the stickers, drop-down menu and already written summaries such as a 'birth summary' which only required ticking, were found useful as they ensured that the student had not forgotten anything, and it also meant less writing for them:

'I can be putting normal vertex delivery of a live female infant and then say vitamin K given; I have missed the third stage. Has her placenta delivered or not? Whereas on this birth summary oh yeah; the placenta, I need to say about that. To look at this birth summary and make sure every box is ticked I know I haven't forgotten anything' (M5.82)



Apart from that, checking over work, that needed to be done or any work done, related to documenting information, performing other tasks such as assessment of patients, and to drug administration (See Chapter 4, Section 4.1.2, p.122-3) as reflected in the comments above (Figure 5c) and below:

'So if I'm doing a palpation, is it OK if I touch your tummy and then Oh where do you get your movements. The whole time I'm reaffirming what I think I'm finding. I think it's kind of helping in that way anyway' (M3.14)

'I might do it two or three times just to make sure that is correct' (N7.73)

5.4 Other coping strategies and/or resources identified as helpful/useful: time taken or given, use overlays, supportive mentor and staff (5.bi-iii)

One of the perceived impacts of dyslexia on the nursing and midwifery students with dyslexia was that of being slow at tasks due to having slow processing speed (Nicholson and Fawcett, 2007; Nicholson *et al.*, 2010). Time taken and/or given to complete tasks including reading, writing, and giving care, was therefore valued and identified as a high priority by some of the students (See Table 5.bi).

Table 5.bi

Helpful strategy for slow processing speed

•Time taken or given

- *'Things like allowing the student enough time to read., I'd say that is quite a high priority.. I'd say having enough time is probaby more important' (N5.94)*
- *'I was given the space and time to do it, it didn't take long to spell check it and make sure it all made sense' (N2.18)*
- *'I have to not let people rush me. I am doing it and I am doing it right' (M3.49)*

Table 5.bii

Helpful, useful strategy or resource for reading

•Use coloured overlay

- *'I use blue overlays as well...For me white paper with black squares is not the easiest so I produced a coping strategy I took in a blue plastic overlay... to help keep in place all the lines. I found that really good' (N1.21)*
- *'I really struggled to keep the words in place, whereas blue and green overlays made it stay still ...they are really good' (N1.41)*

Table 5.biii

Helpful, useful resources

•Supportive mentor and staff

- *'My mentor did go out of her way to mentor me differently and listened to what I said and it was actually a real breath of fresh air' (N5.70)*
- *'Mentor was also dyslexic, very good at helping me (M2.19) ...was very helpful' (M2.21)*
- *'Mentor allowed me to explore as much as I wanted to and supported me in every aspect' (N2.P1)*
- *'I have had amazing mentors' (N1.114)*



As stated in Chapter 3, some students reported that they found it difficult to read documents in the practice areas so used coloured overlays. Recent research by Henderson *et al.*, (2014) and by Creavin *et al.*, (2015) showed that use of overlays served no purpose for students with dyslexia. However, one particular student explained why she found the coloured overlay useful (Table 5.bii)

The mentors (staff) were also described as helpful resources in the clinical areas in that they showed empathy and helped them cope and some were described as amazing as expressed in the examples of comments in Table 5biii.

5.5 General comments on the usefulness of the poster guidelines; by the students and mentors (qualified staff)

Comments from some of the students suggest that they were able to identify with some of the strategies identified in the right-hand column of the poster guidelines (Table 5a; Appendix 2H, p.288) in a positive way as they were similar to those they had used to help them overcome challenges they experienced as a result of dyslexia in the clinical areas:

'The strategies your poster suggests are all strategies I currently use to help myself' (M3-feedback note)

'Yeah, I can relate to a lot of this' (M5.160)

'I think everything here are the things that I have learnt to eventually do so having that put in place from the beginning as soon as nursing students are diagnosed; I think that would be so good for them' (N6.127)

'There are so many like forgetfulness; repeat things, I always do that! Encourage the student to keep a diary, I always do that. Encourage the student to use audio visual aids to help with spell checking. I did use that before I broke it. (Pause) Yeah I always get people to check over my work' (N3.106)

'This is quite, it is broad, but it does meet a lot of the things I have with my dyslexia. It is quite bang on really' (N1.88)

5.5.1 Poster (with guidelines for supporting students with dyslexia): a useful toolkit

On the whole, the poster was referred to and evaluated as a very useful or helpful toolkit as all the identified strategies on the poster were described as useful, helpful, really good, good, brilliant or fantastic by students and by mentors and are reflected in the comments in the following table (Table 5c.)



Table 5c POSTER (GUIDELINES): A VERY USEFUL TOOL		
<p>'A very useful tool for clinical placement environments' (Ment3)</p> <p>'I feel this poster was very helpful clear and able to get across ways to support individuals' (Ment5)</p> <p>'Repeat things, diary keeping, audio-visual aids, give students time to complete documents; very useful things; have supported student with dyslexia before' (Ment9)</p> <p>'Fantastic ways of helping dyslexic student ...'(Ment10)</p>	<p>'I found the poster to be quite informative....all the strategies in the poster were all useful and helped me to view how I prepare my teaching methods and meeting different learning needs especially with students with dyslexia...' (Ment7)</p> <p>'Good guidelines to support dyslexic students at work placement.' (Ment18)</p> <p>'Very useful information. They should have them in every work place these guidelines' (Ment13)</p> <p>'Very helpful for mentor ' (ment19)</p>	<p>'I think they are brilliant (N3.117; M2.110)</p> <p>'...they are really really good' (N3.118)</p> <p>'This is really good' (N3.104)</p> <p>'I think this is quite useful' (N4.137)</p> <p>'Yeah, it is good; all the things on there are really valid'(N5.86)</p> <p>'I wish I had something like this from the beginning because the solutions are really useful; things that I eventually learnt to do' (N6.127)</p> <p>'This is perfect '(N3.102</p>

Key: Ment = Mentor

5.5.2 Informative; teaching and learning guide

Although comments from both mentors and students suggest that the poster guidelines were perceived as a useful tool, only a few of them gave reasons for the same. Some of the mentors described the poster as informative and helpful in raising awareness in clinical placement:

'The poster appears to be a very useful tool for mentorship guidance in supporting students who suffer with dyslexia. Whilst every dyslexia sufferer may not find all strategies suggested useful, it provides opportunity for awareness of possibilities within placement environments' (Ment3)

'I feel the poster gives mentors some useful guidelines for supporting students with dyslexia. I have put a copy of this into our students' pack. It does seem quite busy at first glance, but the information is relevant and useful' (Ment6)

The poster was also described as a useful teaching and learning aid for both mentors and students. For mentor 7, for example, the information on the poster helped in the planning and preparation for teaching and to help meet the different learning needs for the student with dyslexia (Table 5C). Mentor 7 also expressed that the strategies will be applicable and useful even after the student becomes a qualified nurse. Student nurse 6 also stated as follows whilst holding a copy of the said poster guidelines:

'This one is really good because it gives information on things that mentors should or shouldn't do, like avoid overloading with information or repeat things where necessary. But then it also gives information on what students should do, for example, encourage students to use audio visual aids to help



with spell checking, that is something a student could take on board. I think this does kind of hit both of them' (N6.137)

5.5.3 Raises awareness of what dyslexia is about and the strategies used

It was interesting to note that some of the students remembered some of the strategies they used in placement only upon seeing such strategies identified on the said poster. For some of the students, for example, the content of the poster served as a reminder of the problems associated with dyslexia which validates the findings that some of the students with dyslexia tend to be forgetful due to their poor short-term memory:

'I think this is quite useful. It's got the problems which for a dyslexic person although they know it, they don't always remember what their problems are! You just live with it I suppose! It's like having a syndrome, you have it but you don't always know the ins and outs of it. You couldn't always necessarily explain it to somebody' (N4.137)

'Do you know what, going down there I could say yes, yes, yes to all of that and one thing that didn't come out here, this lack of confidence and low self-esteem. That's really interesting to see that because I doubt myself so much to the point that the girl that sits next to me just says you are driving me mad that you doubt yourself' (M3.59)

The comments made by student midwife 3 (M3.59) suggest that she lacked confidence in herself and it was only when she noted this mentioned on the poster that she remembered to talk about it. Another student did not mention the use of overlay as a coping strategy until it was mentioned in relation to or it was noted on the poster:

'So there are a lot of things on here that matches me and my dyslexia. So using a calculator I have already explained about. Confidence was part of it as well. Give constructive feedback that's always useful. Coping strategies ... coloured backgrounds; look... I use a blue background. I have identified that as good for me' (N1.89)

Apart from raising awareness of what dyslexia is about and some of the strategies used, it was interesting to note also that the issues of disclosure were raised by one of the students only upon the researcher introducing the poster guidelines. One student, for example, brought to the researcher's attention that she did not think her mentors knew she had dyslexia:

'I don't think my mentors know I'm dyslexic, I don't tell them' (M1.61)



This was interesting as up until that point, it was believed that the student had disclosed to her mentors since part of the criteria for taking part in the study was that of disclosure. Upon exploration, however, she had apparently disclosed to the university staff and to her community mentors although not to her mentors in the hospital since she worked with them for only a shift at a time. It was, therefore, considered ok for her to be included in the study.

5.5.4 Suggestions made by students and mentors regarding the said toolkit (poster guidelines).

Although positively evaluated, some suggestions were made by both nursing and midwifery students as well as by the mentors as to how the poster could be re-developed.

5.5.4i What to add to or subtract from any future guidelines:

Some of the participants, for example, suggested changes they would like to see in another set of guidelines or tool:

'Put some in bold, maybe the ones that were higher, like from your research, whatever ones come back as the most predominant issues, put them in bold. Things like allowing the student enough time to read, I'd say that is quite a high priority than like other ones, so like a quiet environment' (N5.94)

Comments from some of the mentors (e.g. Ment12; Ment16; Ment22) and from one student (N3.114) also suggest the need for any such guidelines in the clinical areas to have less content. Interestingly, and in contrast to that, other students and one mentor had requested that, other strategies they have found useful and which are not identified on the said toolkit should be added on to any future guidelines. Such strategies include the following:

- Allow student to use lap top (N5.77; N5.80);
- Use of coloured pens (N3.129; N6.129-132; N6.134-5; M1.47; M5.95-99)
- Encourage use of notebook (N6.133)
- Tick boxes (N6.133)
- Need for continuity of mentors (M2.114-117)
- Some structure from mentor needed (N4.141; 144)
- Add a phone number where more information or help could be found (Ment13)

One student midwife also suggested a change to the title of the guidelines and that it should be used by the student rather than by the mentors as she stated:

'Your guidelines could easily be re-titled 'Guidelines for the dyslexic student to support themselves in 'clinical practice' (M3-feedback note)



5.5.4ii How and where such future guidelines could be used

Other students and mentors also suggested how and where any such future guidelines for supporting students with dyslexia could be used. In contrast to student midwife 3's statement, some of their comments suggest that any such future guidelines for use in the clinical areas should be interactive; in other words, it should be used by both mentors and students as the content could be used as points for discussion and identification of the students' needs and how they could be supported:

'Yeah, so this would be quite good just to give to your mentor. You could have a smaller one of them and then for example I could go on to placement and say I've got dyslexia and this is the little information thing that they give. That would be quite a good idea. This is really good' (N3.104)

'We'll have this still but make something else which is for the mentor to use with their student' (N5.101)

'...if they actually have to sit down with their student and go through them then they should by the end of the conversation have a good understanding of that student's dyslexia' (N6.127)

'If there was something like this in the students' pack in placements, it would be really useful. If I saw that in my student pack I'd be so relieved, I'd think Oh at least they know they all have dyslexic students and these are our problems. At least they know I will need this help' (N6.143)

'..It would be worthwhile to point out that even when students with dyslexia qualify it's also useful to use these strategies' (Ment7)

'How can we integrate this in clinical practice not just for student nurses but more so for nurses who have a practising pin and have dyslexia?' (Ment8)

'When I go to every placement I get like a student pack. If they had me something like this in there, it would be so useful. Yeah obviously every student isn't dyslexic but in case they are it's there' (N6.142)

The above suggestions are considered in the recommendations section and in the development of the new tool-kit for supporting students with dyslexia in the clinical areas. Prior to that, however, the discussion of the findings is given in the next chapter and which is followed by the limitations and conclusions of the study.



5.6 Summary

Many of the strategies that were available and/or developed and used, were evaluated positively. Of particular interest to the students were the memory joggers and the strategies that helped with organising, time management, documentation and reading. They also seemed to have found time taken and or given to complete tasks useful.

The poster guidelines were also evaluated positively as they were described as a very informative. The poster on the whole, was also referred to as a useful tool kit, the content of which serves as a teaching and learning guide that helps to raise awareness of what dyslexia is about by both students and mentors. Nonetheless, both students and mentors made suggestions of how the poster guidelines may be re-developed, who, where and how any such future guidelines or toolkit should be used. Consideration is given to those suggestions in the development of a new toolkit.



CHAPTER 6

DISCUSSION OF THE FINDINGS

6.0 Introduction

As advised by Glaser (2010), review of the literature should be done after the study so that it can be integrated into current literature on the field. This chapter, therefore, is a critical discussion of the findings, with the use of appropriate and/or relevant literature on the challenges the students experienced and their implications, with particular reference to fitness to practise and future employment. This is followed by critical discussion on the students' positive experiences which are inclusive of the coping strategies they developed and/or used and their implications for practice and future employment. Critical discussion on the strategies identified as very good, helpful and or useful, which includes evaluation of the poster guidelines and the theories generated, their implications for practice and future employment are then given.

Although the literature in the nursing field on the topic studied appears to be growing, research papers on the perceived impact of dyslexia and the coping strategies used by the nursing and midwifery students with dyslexia, whilst working in the clinical placement areas, remain limited (See Appendix 3; Table 6b, p315). Relevant and/or appropriate literature were therefore drawn from the UK and from other countries on the topic studied in nursing, midwifery and other healthcare fields and reviewed, the findings of which are compared and contrasted with those of this study (Tables 6b, 6c and 6d- p.164-5, 190, 192 respectively). Where appropriate, literature related to adults with dyslexia or disabilities in other fields of work are also used. Prior to the critical discussions however, a brief overview of the findings is re-presented below (also see table 6a, p.152)

6.0.1 A brief overview of the challenges and positive aspects of dyslexia

The themes generated from this research suggest that the students perceived dyslexia to have both negative and positive impacts on their practice (see Table 6a, p.152). As part of the positive impact, the students developed simple and effective strategies, apart from those provided or available in the clinical areas, many of which were identified as very good, helpful and/or useful. The poster guidelines were also positively evaluated.

Although the contexts within which experiences occurred for the students in each field of nursing namely, adult nursing, mental health and learning disability fields, were different from those of the student midwives, most of the themes generated from data collected for



both nursing and midwifery students were very similar. There were, however, some themes that were generated from the data from mainly student nurses and there were others that were generated from the student midwives' data only (Table 6a).

Table 6a Overview of the themes generated

NEGATIVE IMPACT (Challenges)	POSITIVE IMPACT
• Documenting is challenging	• Practice is a strength
• Difficulty with reading	• Safety conscious
• Slow at performing tasks	• Good verbal, interpersonal and/or relational skills
• Forgetful	• Good observational skills; photographic memory
• Difficulty with numeracy (mainly nursing students)	• Good organising skills
• Drug administration is challenging	• Prioritising skills
• Multitasking is challenging	• Creative
• Stressful/frustrating	• Problem-solving skills
• Poor organising skills	• Develop and/or use coping strategies
• Labour care provision is challenging (student midwives only)	
• Confidence issues	
• Disclosure issues	
• Safety issues	

The evaluative comments on the poster guidelines were however generated by both the nursing and midwifery dyslexic students and by mentors (qualified nursing and midwifery staff who mentor students in the placement areas), some of which were similar (Chapter 5).

6.1 THE CHALLENGES: Documentation and record-keeping issues for the nursing and midwifery students with dyslexia in practice settings (UK / USA)

As noted in the definitions of dyslexia in Chapter 1 (also see Appendix 1A, p.263), many authors seem to define dyslexia as 'unexpected difficulties in learning to read' (Nicholson *et al.*, 2010) and a major feature of dyslexia seems to be that of the phonological deficit theory (Vellutino *et al.*, 2004; Shaywitz, Morris and Shaywitz, 2008; Nicholson *et al.*, 2010; Snowling and Hulme, 2014; Vellutino and Fletcher, 2014). It was thus interesting to note that 'difficulty with writing' rather than difficulty with reading, was perceived by the students as having the biggest impact on their clinical practice in this study (Chapter 3, Section 3.2).



Having gathered the necessary information during assessment, care planning, provision and evaluation of patients care either in the hospital, patients' homes or in the community, for example, record-keeping processes proved challenging for the students in this study due to difficulty in writing. Although not prompted by the researcher, some of the students compared themselves with their peers (without dyslexia) about their writing and the time it took them to complete any documentation. This seems to be supported by findings of other researchers in the United Kingdom (UK- e.g. Illingworth, 2005; Price and Gale, 2006; Morris Turnbull, 2007; Crouch, 2010) and from the United States (Kolanko, 2003), some of which were based on comparative studies (Appendix 3, Table 6b, p.315; Table 6c, p.163-4) and which are reviewed and discussed in chronological order where appropriate.

Following a collective case study of seven nursing students with learning difficulties in the United States of America, for instance, Kolanko (2003) reported that the students had difficulty with writing in the practice settings. Although that finding is supportive of those of this study, legislative constraints meant that Kolanko (2003) had difficulties accessing the target population she wanted to study which resulted in the use of a small sample. In a qualitative study by Illingworth (2005) in the UK of the effects of dyslexia on the work of nurses and healthcare assistants, the participants also reported difficulty when writing patients' notes or completing forms at work. Apart from the pressure of work, problems with spelling may have contributed to this, all of which concur with findings by Morris and Turnbull (2007s) in their study of 116 qualified nurses with dyslexia. They are also supportive of the findings of this study although the participants in Illingworth's (2005) and in Morris and Turnbull's (2007a) studies were not students. Evidence in Canada (Duquette, 2000), the USA (Ferri, Keefe and Gregg, 2001) and in UK (Riddick, 2003), showed that teachers and trainee teachers with dyslexia identified and empathised with and built a special relationship with their dyslexic pupils and/or students (De Beer *et al.*, 2014). Therefore, employing qualified nurses with dyslexia, as in Illingworth's and in Morris and Turnbull's studies, could be beneficial as they are probably more likely to empathise with any dyslexic students they mentor, as reported in Morris and Turnbull's study (2007a).

Following an empirical phenomenological study of a convenience sample of 10 nursing students with and 10 without dyslexia, using focus groups interviews to collect data, Price and Gale (2006) also reported that the nursing students with dyslexia had difficulty completing documents when on placements. Price and Gale's (2006) study was comparative and their findings correspond with those of this study, of Illingworth (2005) and that of Kolanko (2003) except that like the others, the sample used was small. In another qualitative study of the clinical experiences of 18 student nurses who were formally identified with dyslexia in the UK, Morris and Turnbull (2006), used tape recorded interviews to collect data, following which 'thematic analysis' of the data was carried out.



The participants in that study also reported difficulties in relation to clinical documentation (Morris and Turnbull, 2006) which correlates with findings of this study, although this was only mentioned in the discussion section and not made explicit in the findings section. Similar findings were, however, echoed by White (2007), after carrying out a qualitative study which explored the problems experienced by nursing students with dyslexia, the strategies they use to achieve clinical standards and how they could be supported. A sample of seven student nurses with dyslexia, three support workers, eight teaching staff, and nine mentors was used in White's study. The data collected from the teaching and clinical staff in that study, were used to validate those obtained from the student to enhance the credibility of the research (Patton 2002; Cohen, Manion and Morrison, 2011). Their findings were congruent with those of Kolanko (2003), Morris and Turnbull (2006), and those of Price and Gales (2006; Table 6c), and in line with those of this study.

Having explored the experiences and needs of nursing and midwifery students with dyslexia in clinical practice, using a convenience and purposive sample of 16 nursing and midwifery students (with dyslexia) and three mentors, Crouch (2008) also reported that the students had problems completing care plans, patients' notes and assessment forms. This finding supports those of the current study, howbeit it was not made clear whether the mentors also had dyslexia. Difficulties with writing by students with dyslexia were also reported following a comparative study of six nursing students with and six without dyslexia by Child and Langford (2011), and by Ridley (2011; Table 6c), after completing a qualitative study of seven nursing students with dyslexia. Their findings are congruent with those of this study. However, Ridley (2011) did not give any examples of comments made by the participants that reflect this claim. Apart from that, each of the above studies was based on a small sample and the results were based on statements made by the participants of the studies only and not on observation.

6.1i McCandless, Sanderson-Mann and Wharrad (2006) also interviewed nine nursing students with dyslexia and seven nurse educators as a pilot during which the participants reported difficulties in writing when on placement. It was, however, unclear whether the nurse educators in that study also had dyslexia. They followed this up with a comparative study of 75% of 71 students with and 71 without dyslexia with the use of a questionnaire and found that the students with dyslexia encountered more challenges in using care plans and with their documentation than those without dyslexia (McCandless, Sanderson-Mann and Wharrad, 2006). This means difficulties in writing were a problem for both nursing groups (with and without dyslexia) in the clinical settings. This is supported by findings from Crouch (2010), however, the reasons for the difficulties in writing were not discussed by McCandless, Sander-Mann and Wharrad (2006). The authors also did not make it clear as to the exact number that took part in the study. However, they used different means to



collect data from their participants to enhance the trustworthiness of their study (Yin, 2008) and the findings are also supportive of those from this study.

In another comparative study of six practitioners with dyslexia, 63 student nurses with and 52 without dyslexia, Sanderson-Mann, Wharrad and McCandless (2012) explored the impact of dyslexia on placements. This showed that, participants in both groups (with and/or without dyslexia), had difficulty in writing when working in the placement areas. There was however, a statistical difference between the two groups in relation to difficulties in reading and writing patients' notes and using care plans. In this study, varied means were also used to collect and analyse data. Apart from the students, six lecturer practitioners were also interviewed and some of their comments seem to validate issues raised by the students.

The above findings are congruent with those of McCandless, Sanderson-Mann and Wharrad (2006) and of Crouch (2010), all of which are supportive of findings from this study. The findings also confirm that problems with writing, when working in the clinical areas, is common amongst students (with or without dyslexia), which implies that there are other factors that affect record-keeping in the clinical practice areas (Taylor, 2003). This stresses the need to support all students with their documentation when working in the clinical areas. However, many of the studies discussed to date seem to relate mainly to students and staff from the field of nursing and only a couple of them (Crouch, 2008; 2010) related to the experiences and perceptions of both nursing and midwifery students identified with dyslexia. This highlights the need for more research in the midwifery field on the chosen topic.

6.1.1 Difficulty with writing reported by other UK healthcare students with dyslexia

Available literature suggests that the findings on literacy problems, relate to nursing and midwifery students, as well as to those in other healthcare fields. This is reflected anecdotally in the field of social work (Howard, 2004), as well as in research reports from healthcare fields such as medicine, social work and radiography. In a study of the experiences of 50 social work students (with disabilities), 25 practice assessors, 13 placement co-ordinators and 12 disability support staff undertaking placement, for instance, frequent references were made about problems they had with report writing (Wray *et al.*, 2005). Twenty four of the 50 students in that study had dyslexia. Although Wray *et al.*'s study related to students with disabilities in general, the references made about literacy issues were related mainly to the students with dyslexia, so their findings are supportive of those of this study. Although social work students and staff do not seem to have any



hands-on care as part of their work, their role involves a lot of report writing sometimes for submission to a court and as members of the healthcare professions, to work in collaboration with other healthcare workers to promote the interest and safety of clients and patients. Findings from the field of social work are, therefore, relevant and like the others, have implications for practice.

Problems related to writing were also reported in another qualitative study in the UK, which explored the perceptions and understanding of 15 medical students of their specific learning difficulties (Rowlands, 2013; Table 6c, p.162-3). The students with dyslexia in that study also foresaw 'likely difficulties, including writing in patients' notes when working under pressure, after qualifying' (Rowlands, 2013, p.204), although the sample was small. Newlands, Shrewsbury and Robson (2015) also reported that all the participants had problems taking notes (during ward rounds), when completing patients' notes, and with prescriptions and discharge letters, after exploring the experiences of seven medical students in their foundation year. In Newland *et al.*'s study, poor spelling and poor handwriting and the speed at which the participants needed to write also contributed to the difficulties they had encountered, all of which are congruent with findings from one's own study. Although a small sample, Newlands, Shrewsbury and Robson's research report (2015) was thorough and easy to follow and the findings are congruent with those of Rowlands (2013) and of Locke *et al.*'s (2015), following their review of clinicians with dyslexia, all of which are supportive of one's own findings. However, only two of the five papers reviewed by Locke *et al.*, (2015) were from the medical field, the other three coming from nursing and midwifery backgrounds which confirms that research papers on the impact of dyslexia on clinicians in healthcare settings is very limited. More research in the healthcare field on this subject is therefore needed.

6.1.1i A comparative study of the experiences of 14 radiography students with and 23 without dyslexia, (Murphy, 2011, p.135) also showed that the students with dyslexia in their study reported difficulty in writing which was compounded by problems 'in processing audio words', and by poor spelling although they tend to cope by choosing to use words they could spell more easily. This finding is congruent with the findings that individuals with dyslexia have difficulty in writing. However, the participants in Murphy's study seem to have chosen a different strategy in managing their writing. Although difficulty in writing appears to be common amongst individuals with and those without dyslexia (McCandless, Sanderson-Mann and Wharrad, 2006; Crouch, 2010; Sanderson-Mann, Wharrad and McCandless, 2012), there was no mention of difficulty in writing in relation to the students (without dyslexia) in Murphy's or in Price and Gale's (2006) study.



6.1.2 Relentless amount of paperwork, spelling and poor handwriting: (contributing factors to challenges related to writing in the clinical setting)

For the students in the current study 'the relentless amounts of paperwork' (Section 3.2) whilst working in busy and sometimes noisy environments (Section 3.2.4), seemed to have exacerbated the challenges they faced in relation to record-keeping processes and which may have contributed to their frustration, anxiety and stress. One of the students did, however, suggest that the challenges faced in relation to writing due to 'the relentless amount of paperwork' is perhaps common to all and not just to individuals with dyslexia on placement although dyslexia makes it more challenging. Such challenges for the nursing and midwifery students with dyslexia, for example, were, compounded by difficulties with spelling, grammar (Section 3.2.1) and the mixing of letters, words or phrases (Section 3.2.2). These findings are supportive of those from the field of medicine (Newlands, Shrewsbury and Robson, 2015) and of radiography (Murphy, 2011). They also support Meyler and Breznitz's (2003a; 2003b) reports that university students with dyslexia found orthographic processing very difficult. However, Nicholson and Fawcett (2011, p120) attributed the difficulty in spelling to problems in skills automatization and explained that due to the 'strong interdependence between' reading, spelling and motor skills, any problem in one of those skills may result in 'problems in all three'. This, in turn, seems to be supported by the claim that apart from the phonological deficit, deficiency in semantic and syntactic skills may also play a role in the aetiology of dyslexia (Dickinson and Tabors, 2001; Russeler *et al.*, 2007; Snowling and Hulme, 2014; Vellutino and Fletcher, 2014). Impaired semantic processing could influence the way in which one generates a coherent text and develop them into arguments (Morken and Helland, 2013) all of which could explain why individuals with dyslexia tend to have multiple symptoms and problems in relation to writing. In this study, difficulty with grammar, the mixing of letters and/or of words and phrases, for example, meant writing backwards, and the production of incomprehensible information or indeed the wrong spelling of key words, inclusive of drug names (Section 3.2.1; Section 3.2.2i) for some students. In contrast to those findings and those from other researchers (Meyler and Breznitz, 2003a; 2003b; Crouch, 2008; 2010; Newlands, Shrewsbury and Robson, 2015) however, a comparative study by Connelly *et al.*, (2006) showed that the essays written by university students with dyslexia did not lack organisation, sentence structure or grammar. Nonetheless, the students in the current study seem to have coped through heightened awareness, hypervigilance (Section 4.1.3), and by double-checking with mentors, peers, spell checks and with dictionaries, as well as by making the necessary corrections (Sections 4.1- 4.1.3). It was noted in another study (Morris and Turnbull, 2006) that the heightened awareness and hypervigilance of the students with dyslexia promoted safety.



In contrast to Morris and Turnbull's (2006) findings, however, there were occasions when inaccurate information due to illogical sequence of the written work was produced (Section 3.2.2) by some of the students in the current study, despite their heightened self-awareness and hypervigilance to help avoid and/or minimise mistakes, and which raised issues of patients' safety (Section 3.11). Crouch (2008) also reported documentation errors some of which involved numbers, despite steps taken by the students to avoid errors and which supports findings of this study. This supports the idea following a narrative review on the topic by Sanderson-Mann and McCandless (2006), that nursing students with dyslexia may make errors in record-keeping on patients and on other notes. However, many of the papers in their review were anecdotal and they argued that there are other factors that could affect record-keeping, a notion supported by Taylor (2003). Whatever the case, the above findings have implications for the students' practice, future employment and for employers.

In the current study, some of the students also reported having scruffy handwriting (Section 3.2.3), one of whom found it so embarrassing that she hated writing, especially in front of others. Although not stated by the students in question, it is arguable that having scruffy handwriting may also have been a contributing factor to their difficulty in writing. Some of the students, for instance, tried to ensure their handwriting was legible by writing slowly and neatly; that coupled with the relentless paperwork would have been compounded by problems related to spelling and the pressure of time to complete the written reports on patients. Similar findings were reported by Morris and Turnbull (2006), White (2007) and by Crouch (2008), all of which support findings from the USA (Connelly, 2006, p.191), who 'linked the quality of essay writing to the level of spelling accuracy and handwriting fluency'. In their study, Morris and Turnbull (2006) reported that a student was asked by his mentor to stop writing in the care plans since the mentor was unable to read a word of it. It could be assumed that the mentor was concerned about patients' safety, a finding which was echoed by practice educators in Nolan *et al.*'s study (2014). However, the student in Morris and Turnbull's study (2006) was not informed of the reason why the work could not be read, and the participant felt hurt by the mentor's statement. These findings seem to suggest that some of the challenges faced by students and practitioners with dyslexia in clinical practice also contribute to the emotional challenges they experience, and care should be taken by other staff to avoid embarrassment.

The challenges faced in writing meant the students in this study appreciated extra time to complete documents. They also seem to have remedied some of the challenges by using available systems and resources, including drop-down menu, already written information



that only required ticks to complete, and the use of audio notes, which are discussed in the strategies section.

6.1.3 Difficulty in writing in academic setting in both students with and those without dyslexia

Since dyslexia is a long-term condition, one would expect that a problem such as difficulty in writing affects the students in the practice settings as well as academically. Evidence suggests that this is true of nursing and midwifery students, medical students, healthcare practitioners, and individuals with or without dyslexia, irrespective of their background and/or field of work. In a grounded theory case study of the experiences of 15 (without dyslexia) and seven nursing and midwifery students with dyslexia, of their personal academic tutors and how their needs could be met, for instance, Crouch (2010) found that fewer than half of the students without dyslexia, and all the students with dyslexia, reported having difficulties with writing although for different reasons. Factors that were reported to have contributed to difficulty with writing by the students without dyslexia in that study, included misreading and misunderstanding of guidelines as well as the lack of familiarity with assignment topics. The students with dyslexia, on the other hand, were more concerned about poor spelling, grammatical and syntactical errors (Crouch, 2010) the findings of which are supportive of those of the current study. The findings imply that the type of support needed for those with dyslexia differ from the type of support needed for those without dyslexia. In any case however, support will need to be tailored to individual needs to help them overcome their writing difficulties since individuals differ from one another.

With the use of a case study, Shrewsbury (2012) also reported Abi, a medical student who had difficulty with her academic work as well as with applications on her mobile phone, in relation to recording memos. Shrewsbury, however, argued that, although there is a significant amount of writing in the medical field of work, 'it could be easily compensated for more readily' (2012, p.3). This report was related to only one student with dyslexia and it was unclear whether the information was research-based as there were no details related to research. However, a qualitative study of 15 medical students' perceptions and understanding of their specific learning difficulties also showed that the medical students had difficulties with their academic work (Rowlands *et al.*, 2013). This seems to correlate with the findings from nursing and midwifery fields in the UK (Crouch, 2010) and with those of Sterling *et al.*, (1997), Riddick *et al.*, (1999) and of Connelly (2006), the latter three of which related to individuals with and without dyslexia, studying different subjects.

Research findings, following a study on writing with the use of a sample of 16 individuals with and 16 without dyslexia, from different subject areas and who were 'matched for age,



gender and subject areas', for example, also revealed that the students with dyslexia had more spelling error rate, wrote shorter essays and more slowly than those in the controls group (Sterling *et al.*, 1997; p.1). They did, however, advise that their findings should be treated with caution (Sterling *et al.*, 1997). In another comparative study of 16 students with and 16 without dyslexia within a UK university, from varied subject areas of accountancy, teaching, sales representative, lecturers, design, music, management, engineering, ships officer and science, Riddick *et al.* (1999) found that the students with dyslexia rated themselves more anxious and less competent in their written work than those without. The above findings were also consistent with a latter study (Connelly *et al.*, 2006), which showed that written work produced by college students with dyslexia was poorer in text than that produced by those without dyslexia at transcription level.

It is noted from the above discussion that difficulty in writing appears to be common amongst individuals with and those without dyslexia irrespective of educational, or professional background in the academic setting, although it seems to be more prevalent in individuals with than in those without dyslexia. Research findings from the USA showed that writing difficulties also persist in individuals with dyslexia even after remedial and/or compensatory strategies are used to alleviate reading difficulties (Berninger, 2007). However, hardly much of that is reflected in the many definitions of dyslexia available. According to Nicholson and Fawcett (2011, p.120) the problems related to writing are 'attributed to motor skills difficulties', however, the difficulty in writing appears to be under-recognised due to its omission within the definition of dyslexia (Berninger *et al.*, 2007; Nicholson and Fawcett, 2011). A more appropriate definition of dyslexia should perhaps be considered. Research findings from the USA showed that writing difficulties also persisted in individuals with dyslexia even after remedial and /or compensatory strategies were used to alleviate reading difficulties (Berninger *et al.*, 2007)

Research on dyslexia seems to focus mainly on reading and there is little on 'writing in dyslexia' (Connelly, 2006; Kemp, Parrila and Kirby, 2009; Morken and Helland, 2013, p.131), although it is believed that the biggest problem faced by students with dyslexia in the academic setting is writing rather than reading (Hatcher, Snowling and Griffiths, 2002). The ability to write clearly and accurately in patients' notes, assessment forms and/or care plans is vital in order to safeguard the interest of patients (NMC, 2015b). It is also vital in the successful completion of assignments and dissertations so the findings from the current study and from previous and varied studies discussed to date have implications for practice in the healthcare academic and clinical setting which are discussed later on.



6.1.4 Difficulty with writing amongst other students with disabilities (UK, Canada, USA, New Zealand, Australia and Japan)

Problems related to writing are also common amongst students with disabilities other than dyslexia. Following a survey of 593 university students with disabilities in the UK on their experiences of teaching, learning and assessment, for example, a sample of 20 were followed up using group interviews, which showed that students with other disabilities found essay and assignments writing difficult (Fuller, Bradley and Healey 2004). They also had difficulty in taking notes during teaching sessions (Fuller, Bradley and Healey 2004). Each student was however offered £5.00 as an incentive for taking part in the group interviews and which may have biased their responses. Although six of the 20 interviewed had dyslexia, the total number of students (with dyslexia) who took part in the survey was not made clear. Nonetheless, nine of the few sample comments noted in that report were attributed to students with dyslexia. Fuller, Bradley and Healey's findings, however, are congruent with those of Healey *et al.*, (2005) who conducted a comparative survey that showed that 54% from a sample of 276 students with disabilities and 17% of 272 non-disabled students had difficulty with literacy skills. The figures presented by Healey were raw data although it is logical to assume that the findings would be statistically significant when analysed. The above findings seem to be supportive of those of Wray *et al.*, (2005). A comparative survey of 805 adults with learning disabilities (self-reported) from a total sample of 20,360 also showed that, literacy proficiency was consistently lower in adults from Canada, USA, Great Britain, Ireland, New Zealand, and Northern Ireland, who self-reported of having learning disabilities than in those who did not self-report as having learning disabilities (Vogel and Holt, 2003).

Ryan and Brown (2005; Ryan, 2007) also carried out a study on eight Australian university students with a range of learning difficulties, using semi-structured interviews and reported that all the participants had difficulties with spelling and writing, a finding which is supportive of those of an international study (Vogel and Holt, 2003). The participants in Vogel and Holt's survey and in Ryan's (2007) study, however, selected themselves as having learning difficulties and the researchers did not know whether or not any of them were formally identified with learning difficulties. The sample used was also small and Ryan did not make it clear what type of learning difficulties each of the students had. However, the sample used in Vogel and Holt's survey was large, $n=805$ from a total of 20,360 adults. The above findings were consistent with those from a survey of 347 nursing programmes in Japan, which revealed that 21 of the 146 students identified with special needs, also had difficulties with writing (Ikematsu *et al.*, 2014). What is not clear is whether or not any of the students studied had dyslexia.



6.1.4i The above findings do, however, support the idea that difficulty with spelling and writing is common amongst students with disabilities other than dyslexia, both in the academic as well as in practice settings and that it is an international issue despite the differences in spoken and written languages. Notably, only 54% (Fuller, Bradley and Healey, 2004) and 30.6% (Ikematsu *et al.* 2014) of students with disabilities other than dyslexia respectively had difficulties with writing, which contrasts with evidence that all the students with dyslexia in some of the UK studies reviewed (Connelly, 2006; Crouch, 2008; Crouch, 2010) and in others from the USA (Berninger, 2007; Berninger *et al.*, 2008) had difficulties with writing. However, some students with disabilities, including those with dyslexia, received support in the academic settings only (Blankfield, 2001) and for others, on an ad-hoc basis (Shevlin, Kenny and McNeela, 2004; Tinklin, Riddell and Wilson, 2004; Hargreaves, 2009).

It is noteworthy that the severity of the difficulties associated with dyslexia, seems to vary from one to another and many of the students were aware of their shortfalls and had personal strategies for coping, the majority of which were adaptive. One student, for example took his time to write slowly and neatly (Section 3.2.3) and others used technology to spell check and/or reduce the amount of writing (Section 4.4). This means some of the students manage to achieve accuracy in documenting with the development and/or use of coping strategies as was demonstrated by one of the students in the current study who was praised for her excellent record keeping by her mentors (Section 3.2i). However, others may not cope. In a UK study which explored issues related to the preparation and practice of healthcare practitioners with disabilities, for example, reports from some of the healthcare practitioners suggest that they had supervised students with dyslexia who had severe problems with writing and that even with the provision of reasonable adjustments, were unable to complete records on patients accurately (Hargreaves *et al.*, 2014). Any form of support for students with disabilities, including those with dyslexia should therefore be tailored to individual needs.

6.1.4ii Many organisations including hospital trusts now use computers with the intention of minimizing the amount of writing required for certain aspects of care although many assessment forms, care plans, drug prescriptions on the ward areas and information for patients' notes are hand written. Any such communication must be legible, effective and understandable as per NMC requirement (NMC, 2015b, Section 7). Apart from clarity, any records kept that are relevant to the nurses and midwives scope of practice must also be accurate (NMC, 2015b, Section 10). That all nursing, midwifery and healthcare activities are underpinned by good communication, cannot be over emphasised, hence the mandatory requirement for the maintenance of accurate and legible records for students and qualified nursing and midwifery staff (NMC, 2015b; 2016c: Rule 6, 9c, 1.5).



Interestingly, some authors suggested that many people with dyslexia tend to avoid work that involves a lot of writing and, therefore, lean towards choosing nursing (Taylor and Walter, 2003). This is probably due to a lack of knowledge and/or misunderstanding of what nursing really involves.

Discussion to date highlights the need for early identification of dyslexia, needs assessment and provision of appropriate support. It also highlights the importance of adult literacy classes which were developed in the UK following Moser's Report (1999) although it has been criticised for not meeting individual needs (Bell, 2009). Provision of regular specialist add-on study skills sessions have also been shown to enhance the likelihood of progression for students with specific learning difficulties (Wray *et al.*, 2013) and should perhaps be considered.

Wright (2000) found that support for students with disabilities seemed to be well established in the academic settings. However, the accommodations that are usually provided to help address writing difficulties, namely, laptops, tape-recorders, provision of extra time to complete written work or examination, provision of notes prior to classes, (Price and Gale, 2006; White, 2007; Dearnley, Elliot, Hargreaves *et al.*, 2010; Bjorklund, 2011) 'do not shift effectively into' placement areas (Price and Gale, 2006, p.31). Apart from their spell check and calculation functions, mobile technologies have been evaluated by health and social care students with disabilities, including those with dyslexia as useful due to having functions that help produce written and audio diaries, alarm systems and camera functions that aid memory (Price, 2006; Dearnley, Elliot, Hargreaves *et al.*, 2010). For the students with dyslexia, therefore, they served as aide-memoires, useful for organising their day-to-day work (Dearnley, Elliot, Hargreaves *et al.*, 2010) so their use should perhaps be encouraged although it has cost implications.



Table 6c Research findings from this study compared with those from other studies from national and international arena: Perceived negative impact of dyslexia on the nursing and midwifery students' practice

Research findings →	Writing difficulty	Reading difficulty	Forgetful	Slow at tasks	Difficulty with numbers	Difficulty with drug admin	Difficulty with multitasking	Stress, anxiety, frustration	Stress led tiredness, confusion, stuttering etc.	Confidence	Poor organising skills	Labour care provision is challenging	Safety Issues	Dis-closure issues
Other Nursing / midwifery fields – with dyslexia UK														
• Illingworth K (2005)	x	x	x	x	x	x		x						x
• McCandless Sanderson -Mann and Wharrad (2006) Comparative	x			x		x								x
• Morris and Turnbull (2006)	x	x	x	x		x		x		x				x
• Price and Gale 2006)	x	x	x	x		x		x		x plus low self - esteem	x		x	x
• Morris and Turnbull (2007a) (2007)	x	x	x	x		x								x
• White. (2007)	x	x	x	x	x	x								x
• Crouch (2008; 2008a)	x	x	x	x	x		x			x			x	x
• Crouch (2010) Comparative	x Both groups		x	x	x	x								x
• Child and Langford (2011)	x	x	x	x						x				x
• Ridley (2011)	x	x	x	x	x									x
• Sanderson-Mann <i>et al.</i> , (2012) Comparative	x statistical difference in groups	x		x		x Both groups								x
Nurses with dyslexia USA														
• Kolanko (2003)	x	x	x	x	x			x anxiety		x				x



Research findings →	Writing difficulty	Reading difficulty	Forgetful	Slow at tasks	Difficulty with numbers	Drug admin difficult	Difficulty with multitasking	Stress, anxiety and frustration	Stress led tiredness, confusion, stuttering etc.	Confidence	Poor organising skills	Labour care provision is challenging	Safety Issues	Disclosure Issues
<u>Medical students/Drs with dyslexia UK</u>														
• Rowlands (2013)	x				x	x		x		x				
• Newlands Shrewsbury and Robson (2015)	x	x	x	x	x			x						x
<u>Radiographers with dyslexia</u>														
• Murphy (2008; 2011)	x	x		x			x							
<u>Student with disabilities – UK</u>														
• Riddick <i>et al.</i> , (1999)	x							x Anxiety		x = low self-esteem				
• Healey, Fuller Bradley and Hall (2005)	x	x		x						x				
• Wray <i>et al.</i> , (2005)	x													x
• Social work students with disabilities														
• Stanley (2007; 2011)														x
<u>Teacher, Nurses, & Social workers</u>														
• Rankin <i>et al.</i> , (2010)	x													x
• Dearnley <i>et al.</i> , (2010)	x													x
• Hargreaves <i>et al.</i> , (2014)	x				x								x	x
Healthcare students and practitioners														
• Green (2014)														x
• Nolan <i>et al.</i> , (2014) 63 students in education, social work, dentistry, medicine, occupational therapy, nursing, dentist, physiotherapy, radiation therapy, and deaf studies with disabilities	x													x
• 68 Practice educators													x	x
<u>Students with disabilities Australia</u>														
• Ryan and Brown 2005; Ryan 2007	x	x	x				x			x	x			x
• Ikematsu <i>et al.</i> , 2014 Japan	x	x			x									



6.2 Difficulty with reading

Dyslexia is currently identified as a long term 'specific reading difficulty' (Snowling, 2000; Nicholson *et al.*, 2010; Peterson and Pennington, 2012). Research showed that the observable dyslexic symptoms of poor phonological awareness, and lexical deficits such as word identification and spelling, in children during early years of learning to read remained observable in the same individuals right into adulthood (Bruck, 1990; Shaywitz *et al.*, 1999; Hatcher, Snowling and Griffiths, 2002; Firth *et al.*, 2013; Snowling and Hume 2014; Vellutino and Fletcher, 2014). With that in mind, one expected to find information that suggests that all the participants of this study have reading difficulties and/or elaborate on this as the aspect of dyslexia they perceive to have had the most impact on their practice. Interestingly however, only nine of the 12 students with dyslexia had been formally identified as having difficulty with reading, five of whom were identified also as slow readers (Section 3.3). An interesting point was that two of the students who had nil written in their files about having a reading difficulty, as well as seven of the nine who were identified as having reading difficulty in the files, did make comments during the face-to-face interviews that suggest that they had some difficulty with reading. In other words, only nine of 12 students made comments during the face-to-face interviews that suggest that they had reading difficulties.

In a previous study on the needs and experiences of dyslexia on nursing and midwifery students, Crouch (2008- see Appendix 3, Table 6b, p.315) also found that some of the participants expressed difficulties related to reading charts, patients' notes and pronunciation of words. However, their biggest concerns were related to forgetfulness and difficulty in writing (Crouch, 2008). This seems to confirm aspects of the findings of this current study which imply that difficulty in reading has a lot of impact on a person's ability to write (Nicholson and Fawcett, 2011).

Contrary to the long-term observable dyslexic symptoms related to reading in adults (Firth *et al.*, 2013; Snowling and Hume 2014), some Australian, Canadian, USA, and UK studies showed that, some adults with dyslexia (compensated dyslexics) have managed to attain word identification and reading comprehension levels within the normal range. This occurred despite history of severe reading problems (Pennington *et al.*, 1986; Bruck, 1992; Snowling *et al.*, 1997; Hatcher, Snowling and Griffiths, 2002; Deacon, Kemp, Parrila and Kirby, 2009). This might be the reason why some of the students in the current study did not report any reading difficulties, however, this was not explored. According to Lefly and Pennington (1991) of USA, up to 25% of individuals who were identified as having dyslexia during childhood compensate for the difficulties encountered during childhood.

Pennington and Lefly (2001) also showed that the ability to read was dependent on single word recognition and the ability to process words in a text. This seems to be true of the



students in the current study. Some of the students in the current study, for example, found it difficult to read ward policies, observation charts, and prescription charts due to the layout in some cases (Section 3.3.1). Word recognition, especially to do with drug names, compounded by poor doctors' hand writing was also an issue (Section 3.3). In Price and Gale's study (2006), students with dyslexia also reported word recognition issues yet they did not link this to poor handwriting. People with dyslexia have also been found to be slower and less accurate than the control group when reading familiar and unfamiliar words (Bruck, 1990) and pseudo-words (Wolf and Bowers, 1999; Kemp, Parrila and Kirby, 2009; Nicholson and Fawcett, 2011). The lack of familiarity may therefore have contributed to the difficulty in the pronunciation of certain words, inclusive of professional jargon and drug names, however, this was not explored. There were also words as well as number switching during reading (Section 3.2.2) and which raised safety, hence fitness for practice issues. Findings from this study are also consistent with those of a USA study (Kolanko, 2003) and of UK studies (Illingworth, 2005; Price and Gale, 2006; Morris and Turnbull, 2007a; White, 2007; Child and Langford, 2011; Ridley, 2011; Sanderson-Man *et al.*, 2012; Table 6c) from the field of nursing, however, no examples of what was difficult about the reading were given.

Difficulties related to reading were also reported by the medical students in Newlands, Shrewsbury and Robson's (2015) study, some of which related to reading words and/or numbers in the wrong order, and difficulty in reading others handwriting and which were congruent with one's own findings. Others related to reading out loud, speaking on the phone or presenting information which led to anxiety during ward rounds and teaching sessions (Newlands, Shrewsbury and Robson, 2015). However, there were no such reports from participants of the current study. Newlands, Shrewsbury and Robson's study was also on medical students with dyslexia. However, their findings have implications for practice because nursing and midwifery students as well as qualified staff also get involved with ward rounds, team meetings and handovers, to monitor and discuss patients' progress, as well as in presentation of information in class and in the ward areas.

It is evident that issues related to literacy are common amongst adults with dyslexia irrespective of their field of work. This was, for example, reflected in the stories of the trainee teachers in Ferri Keefe and Gregg's study (2001) of teachers with learning disabilities, in Riddick's (2003) study of the experiences of teachers and training teachers with dyslexia, and by Burns and Bell (2010). In an exploration of the experience of six teachers and lecturers from Finnish and English further and higher education, all the teachers and lecturers with dyslexia, reported that they had difficulty with reading and writing (Burns and Bell, 2010). They therefore found it challenging when they had to write spontaneously on the board, or online without prior preparation to read long letters, and



other documents with poor layout (Burns and Bell, 2010). The sample used in that study was, however, small and according to Burns and Bell (2010, p.537), not all the participants had the same characteristics of dyslexia, which makes generalisation difficult. A key finding from those studies was that the teachers with dyslexia were able to demonstrate empathy and provided appropriate support for their students with dyslexia although some of their own colleagues were not supportive. The reasons for the difficulty in reading were, however, not discussed in any of the above studies.

In the current study, however, the type and size of the font used (Section 3.3.3), the colour density of the font, type of document, and amount of and the way information was presented to be read, all seem to have contributed to difficulty in reading. Increase in space and font size have been shown to be helpful to children with dyslexia (O'Brien, Mansfield and Legge, 2005; Perea *et al.*, 2012), which concurs with research findings from Italy and France (Spinelli *et al.*, 2002; Zorzi *et al.*, 2012). Contrarily, the reading of individuals with reading disability is impeded when letters and/or words are arranged closely together which are supportive of findings from this study. In their comparative study of 40 French and 30 Italians with dyslexia, with a control group of normally developing children (matched for reading level), Zorzi *et al.*, (2012, p.11457), also found that letter spacing was significantly beneficial for those with dyslexia as it improved their speed of reading and are findings which support those of Ossen (2012), of Perea *et al.*, (2012) and of this study (Section 3.3).

It is believed that a font type like Verdana or Arial type font are more dyslexia friendly, although it is unclear if such belief is based on research evidence. Over the last seven years, however, the 'Dyslexie' font designed by Boer (2016; DYSLEXIE FONT, 2016), a Dutch graphic designer (Marinus *et al.*, 2016) has been in use although available evidence on its effectiveness as compared to Arial font is conflicting and inconclusive. Marinus *et al.*, (2016), for instance, reported on the findings of three (unpublished) studies that compared Dyslexie font with Arial, one of which showed that although children with dyslexia read more accurately with the Dyslexie font, there was no difference in the efficiency of reading and/or accuracy of performance for pseudo-word reading and the study related to a list of words rather than text (De Leeuw, 2010: cited by Marinus *et al.*, 2016). The other two studies from the Netherlands reported null effect (De Brouwers, 2012; Pijpker, 2013 – cited by Marinus *et al.*, 2016). In contrast to the above findings, however, the performance in reading by children with dyslexia were shown to be better when they used the Dyslexie font compared to Arial (Ossen, 2012) and which were supported by findings from an Australian study (Marinus *et al.*, 2016). However, Marinus *et al.*, (2016) found that it was the increase in the space of the words that enhanced the speed of reading, which is congruent with the research findings from Spain and the USA (Perea *et al.*, 2012) and from France and Italy (Zorzi *et al.*, 2012).



The above studies were, however, conducted on children and it is unclear as to whether similar results will be yielded if conducted on adults. Nonetheless, any available policies and/or guidelines as well as patients' information on computers in the practice areas should consider the application of the best available evidence in order to make such documents dyslexia friendly.

The background colour of sheets on which the information is written (Section 3.3.2) also seemed to have contributed to the difficulty in reading for some of the students. They therefore used coloured overlays, stating that they found them useful (Section 4.5; Section 5.4; Table 5.4ii), which is supported by Child and Langford's (2011) findings, implying that they probably had visual stress (Evans and Joseph, 2002) apart from their dyslexia, however, this is only an assumption. Although visual stress has been reported to be more prevalent in those with dyslexia than those without (Singleton and Trotter, 2005), Singleton and Henderson (2007) questioned the reliability of subjective reports. In the study conducted by Evans and Joseph (2002, p.543), the adults who used coloured overlays 'read on average 3.8% faster with those overlays than without and the difference was statistically highly significant'. However, only 10% of the sample of 113 that used the overlays had reading difficulty and it is unclear if any of them had dyslexia (Evans and Joseph, 2002). The findings also seem to be in contrast with current reviews and research findings which suggest that the use of overlays might not be useful to individuals with reading difficulties, including those with dyslexia as many of such individuals were found to have perfect vision (Henderson *et al.*, 2012; Henderson *et al.*, 2014; Creavin *et al.*, 2015; Torjensen, 2015). However, Creavin *et al.*'s study (2015) related to children aged between seven and nine although it was a comparative study based on large sample of 5822, of which 172 had severe dyslexia and 479 (8%) had moderate dyslexia.

Although students who used coloured overlays appropriate for them in this study did say they found them useful for reading (Section 4.5; Section 5.4; Table 5.4ii), and which cannot be disputed, it would be interesting to observe how the overlay is used in practice. This is because, apart from reading a chart, the student has to chart information on the chart and needs to see where to insert the information at the same time. One student for instance, stated that the use of a blue overlay helped to keep black squares on an observation chart in place (Section 4.5; N1.21). On the observation chart, she had to record patients' observations such as pulse, respiratory rate, temperature, blood pressure and so on. In order to help her read, one would expect that she would place the overlay directly on to the chart to make it possible for her to read, which is good if that is all that she needs to do. A question arises as to how she would hold the overlay in relation to the observation chart when she has to read and record information on the chart at the same time. Nonetheless, this was not explored in this study. It would be interesting to observe this in practice as to



how such a process is operated. This problem could perhaps be tackled by the use of patients' observation charts online to allow individuals to change the colour background prior to reading and charting the findings.

6.2.1 Difficulty in reading reported by students with other disabilities in UK and Australia

Evidence in the UK suggests that some individuals with disabilities other than dyslexia also have difficulty with reading (Healey *et al.*, 2005). Similar findings were also echoed in studies on people with disabilities in Australia (Ryan and Brown 2005; Ryan, 2007; Table 6b) and in Japan (Ikematsu *et al.*, 2014). Different disabilities such as 'deafness, blindness, speech impairment' (Butler and Silliman, 2002) and 'language learning disability' predispose to difficulty in learning to read. However, Berninger and O'Donnell (2004), Healey *et al.*, (2005), Ryan and Brown, (2005), Ryan (2007) and Ikematsu *et al.*, (2014) did not link their findings to any of those conditions. The management of those conditions also differ from 'those of dyslexia' (Berninger, 2000; Berninger *et al.*, 2008, p.2).

6.3 Slow at performing tasks: reading and writing

Moreover, many of the challenges faced by adults with dyslexia have been attributed to the speed of processing and lexical access (Booth *et al.*, 2000; Snowling, 2000; Griffith and Firth, 2002; Buccholz and Mckone, 2004; Nicholson *et al.*, 2010). Individuals with dyslexia for instance, have been shown to be slow at reading and writing due to the presence of processing difficulties (Snowling, 2000; Nicholson *et al.*, 2010; Child and Langford, 2011) and are supportive of findings from one's own study. According to Kerchner (Walker, 2014), slow processing is to do with the rate at which humans take in new information, make some judgement on it and formulate a response. In this study, the students perceived themselves as slow at performing tasks such as reading and writing due to having slow processing speed (Section 3.4) so they appreciated time given in placement areas. The findings are also congruent with findings from other studies in the nursing and midwifery fields in the US and UK. However, none of them were observational studies (Table 6c) and apart from Morris and Turnbull (2007a), the sample used in each study was small (Kolanko, 2003; Morris and Turnbull, 2006; Price and Gale, 2006; White, 2007; Crouch, 2008; Ridley, 2011; Sanderson-Mann, Wharrad and McCandless, 2012).

The findings are also in line with those of other healthcare workers such as student radiographers (Murphy, 2011), medical students and doctors (Newlands, Shrewsbury and Robson, 2015), who have been formally identified as having dyslexia (Table 6c). Gadian, a medical student, also threatened to take legal action against the General Medical Council (GMC) with the hope of banning multiple choice examinations as she claimed that her



dyslexia meant she reads much slower than other people and 'jumps words' (Lipsett, 2008, p.1). Although anecdotal, the way she described how dyslexia affects her reading were also echoed by some of the nursing and midwifery students with dyslexia in Crouch's study (2008; 2008a). Statements made by some medical students with dyslexia on the British Medical Association (BMA, 2010) website suggest that they also had difficulty at reading and writing due to the pace at which they did so. However, it lacked clarity as to whether this was based on research. Additionally, neither the findings from the current study, or from other nursing, midwifery or other healthcare fields were based on comparative studies.

However, findings of some comparative studies seem to support those of this current study. An example of this is a comparative study of university students (one group with and another without dyslexia), matched for age and intelligence, in which participants were presented with ordinary words, pseudo and irregular words to read (Brookes, 2007, cited by Nicholson *et al.*, 2010). They found that although the group with dyslexia read the single (real) words well in reasonable time, they needed more time to read pseudo and irregular words. Moreover, they 'needed at least 260 milliseconds (ms) to perform at the same level as control group given only at 100 ms.' (Nicholson *et al.*, 2010, p.208). Another study showed 'marked impairments in skill proceduralisation for rapid responses' in children with dyslexia when compared with children without (Nicholson *et al.*, 2010, p.208). This implies that students with dyslexia are slower at reading as well as in carrying out other tasks not related to literacy, than those without, findings which are supportive of those of this study. This is in line with findings from other studies in nursing and midwifery in USA and the UK (Kolanko, 2003; Morris and Turnbull, 2006; Price and Gale, 2006; White, 2007; Crouch, 2008; Ridley, 2011; Sanderson-Mann, Wharrad and McCandless, 2012), other healthcare settings (Murphy, 2011; Newlands, Shrewsbury and Robson, 2015), and from other adults with dyslexia in other fields such as teaching (Burns and Bell, 2010), all of whom required or appreciated time to read documents and/or carry out tasks.

6.3.1 Slow at performing other tasks

Also, affected in this study was the pace at which the students performed other nursing and/or midwifery activities such as learning new tasks and performing procedures inclusive of drug administration rounds (Section 3.4.2). This is congruent with findings from other UK studies which involved student nurses, student midwives and practitioners (Crouch, 2008; 2010; Sanderson-Mann, Wharrad and McCandless, 2012) as well as radiographer students with dyslexia (Murphy, 2011; Table 6c). The student midwives also reported being slow at procedures such as catheterisation and vaginal examinations (Section 3.4.2). Although being slow at performing a task is not a new concept or finding for students with dyslexia, the examples given such as being slow in carrying out vaginal examinations on women in



labour and/or with catheterisation are findings that add to the body of knowledge. This is because none of the students with dyslexia in the previous studies gave such examples. This study was however non-comparative as there was no use of a control group. The pace at which tasks were performed was also not measured. Future comparative studies of student midwives (with and without dyslexia) would be useful to help confirm or refute such findings. Students in this study appreciated any time given for completion of work and some learnt to take their time and not to be rushed in the clinical areas (Section 3.4).

6.4 Forgetfulness

Apart from the challenges discussed to date, (Sections 3.2-3.4), the poor short-term memory associated with dyslexia seems to have impacted on the students' practice as according to seven of the 10 students identified as having short term memory (Section 3.5), it meant that they were also forgetful (Section 3.5). This is in line with aspects of the BDA's (2012) definition of dyslexia which refers to difficulty in storing and retrieving information and with memory (Section 1.1). Research reports by Kolanko (2003) from the USA, and from UK researchers from nursing and midwifery fields (Table 6b), namely, Morris and Turnbull (2006; 2007a), Price and Gale (2006), White (2007), Crouch (2008; 2010), Child and Langford (2011), Ridley (2011), as well as from medical fields (Newland, Shrewsbury and Robson, 2015) seem to validate this finding. However, only Kolanko's (2003) and Crouch's (2010) studies were comparative. Furthermore, the sample used in each of the above studies was small and the findings were based on the participants' accounts either through semi-structured interviews and/or questionnaires, except for Kolanko (2003) who used data triangulation to enhance trustworthiness of the study. In addition to that, only six of the 18 nursing students in Morris and Turnbull's study (2006) reported having short-term memory. Newlands, Shrewsbury and Robson's (2015) study also related to foundation year trainee doctors (Table 6c). Besides that, forgetfulness was reported as having the biggest impact on the nursing and midwifery students with dyslexia in a previous study by Crouch (2008). This was not the case in the current study although forgetfulness was highlighted as an issue when the students became stressed. The findings are also in line with those of an Australian study (Ryan and Brown, 2005; Ryan, 2007- Table 6b) though this related to students with learning disabilities, implying individuals studied had other forms of learning disabilities apart from dyslexia although not specified.

In the current study, the things the students forgot included drug dosages and their route of administration and telephone numbers (Section 3.5.1). Aspects of information during and/or following patients or clients care and the order in which they occurred were also forgotten at times which meant that some of the records some of the students kept or attempted to keep were in an illogical order (Section 3.5.3). Some of their comments suggested that they did not want to jeopardise patients' safety so they had taken steps such as writing things



down (Section 3.5.4; Section 4.3) to help them recall information and to help avoid making errors, a finding which is supported by those of other studies (Morris and Turnbull, 2006; Crouch, 2008; Ridley, 2011; Newland, Shrewsbury and Robson, 2015). The use of colour (Section 4.3.1) was also found useful in helping to recall information which is discussed in the coping strategies section. Another strategy used to help one student recall information and/or steps in a procedure was the Neuro-Linguistic Programming Anchoring (Carey *et al.*, 2010; Elston, 2012; Section 3.11; Section 4.2.3; Section 6.11.2).

6.5 Stress and emotional impact

Nine of the students in this study also reported that the exposure to new working environment as they changed placements, (Section 3.5) coupled with the different paperwork (Section 3.5.1), especially on busy wards (Section 3.5.2) led them to experience stress. This seems to be in line with findings by other UK researchers who explored the experiences of students with dyslexia in the clinical settings, from the nursing field (Illingworth, 2005; Morris and Turnbull, 2006; Price and Gale, 2006; Table 6c).

For some students, feeling stressed and/or exposed to new procedures and information led on to anxiety and/or frustration. In a comparative study of 16 student nurses with and 16 student nurses without dyslexia, using self-completed questionnaires, Riddick *et al.*, (1999) found that those with dyslexia rated themselves as more anxious and less competent than those without. Those findings seem to imply that people with dyslexia are probably more likely to have performance anxiety than non-dyslexics and are supportive of the findings of this research. Using the State trait inventory to measure anxiety in the same study, however, Riddick *et al.*, (1999) found no statistical difference between the two groups and it is unclear if any of those students were from nursing and/or midwifery fields, although they were from a higher education sector.

Student nurses with specific learning disabilities (dyslexia) in Kolanko's study (2003) from the USA, also reported frustration and performance anxiety, which interfered with their processing abilities during clinical practice, however, no examples of the actual stressors were given in that paper. Performance anxiety was also echoed by Newlands, Shrewsbury, and Robson (2015), the findings of which support those of this study although that study was related to medical students. Moreover, none of those studies were comparative in nature.

In this study, exposure to working in a busy ward on some occasions seems to have contributed to stress, forgetfulness and poor organisation for some students. One student, for example, reported that he forgot to give a tablet to a patient (Section 3.7) and according to another, she forgot to do things when it was hectic and expressed how stressful things



could be which implies lack of organisation. There were other students who reported having poor organising skills although they did not relate this to multitasking or to stress in this study (Section 3.9). Other UK studies by Price and Gale (2006) as well as Crouch (2008) also found that the nursing and midwifery students with dyslexia had organising problems such as forgetting basic things. In Crouch's study (2008), for example, basic things were forgotten when giving a bath, and the student had to leave the patient to go and fetch things. However, this was not associated with multitasking and/or stress. Lack of organisation skills was also echoed by medical students with dyslexia (Newlands, Shrewsbury and Robson, 2015) and by the students with learning disabilities in higher education academic settings (Ryan and Brown, 2005; Ryan, 2007). However, this was not related to multitasking and/or stress, all of which are supportive of the findings of this study, and is in line with the aspect of the BDA's (2012) definition of dyslexia that relates to problems with organisation.

Interestingly, one participant in another study described a busy ward as 'a nightmare' (Morris and Turnbull, 2006; p.242). Although that was in a different context, it does seem to summarise and highlight the perceptions of some of the students in the current study (Section 3.5.3). It also explains the expressions of preference for work in less acute practice areas by the participants in Morris and Turnbull's (2006) study. This has implications for practice and future employment upon qualifying as nurses or midwives and stresses the need to encourage the development and use of adaptive coping strategies.

Other evidence also suggests a high correlation between clinical placement and stress for both nursing and midwifery students (Timmins and Kaliszer, 2002; Prymachuk and Richards, 2008; Timmins *et al.*, 2011). Unfortunately, researchers tend to study this as one item although there are many stressors in the clinical placement areas and many do not explore what the actual stressors on the clinical areas are.

Other research findings, however, showed that work place stressors include time pressures as well as workload in the hospital and other clinical settings (McGowan, 2001; McVicar, 2003; Banovcinova and Baskova, 2014). An exploration of the experiences of students with special educational needs in England and in Northern Ireland showed that the transition from schools into further or higher education is stressful for all students with special education needs (Yorke and Longden, 2008; McGuckin, Shevlin, Bell and Devecchi, 2014a). It is, therefore arguable that for nursing and midwifery students with dyslexia, the transition into higher education (Yorke and Longden, 2008; McGuckin, Shevlin, Bell and Devecchi, 2014) and the demanding nature of nursing, coupled with all the problems associated with dyslexia probably makes it more stressful for them.



It has, for example, been shown in the UK that individuals with dyslexia have slow processing speed so are slower at performing tasks than non-dyslexics (Snowling, 2000; Nicholson *et al.*, 2010; Nicholson *et al.*, 2011). This is reflected in other research reports in nursing and midwifery fields from USA and the UK (Kolanko, 2003; Morris and Turnbull, 2006; White, 2007; Crouch, 2008; Child and Langford, 2011). Being slow at performing tasks would in turn mean pressure of time, especially in a busy ward or working environment so this probably contributed to the stress encountered by the students. It also implies that in the placement areas students with dyslexia are probably more likely to become stressed than non-dyslexics. However, comparative studies need to be carried out to ascertain this. In contrast to workload in hospital settings as a stressor, a study showed that entrepreneurs with dyslexia experienced stress when working in a structured company environment and felt more comfortable managing situations where they can control variables (Fitzgibbon and O'Connor, 2002).

Another interesting finding in this study was that the perceived impact of short-term memory on the student, namely, 'forgetfulness', was sometimes compounded by the exposure to a busy environment (Section 3.5.3) and which in turn led to stress and frustration with cascading effect (Section 3.6; Section 3.6.2). As one student puts it: 'the more stressed *she gets*, the more forgetful *she gets* and then all the dyslexic problems go into one' (N4.140). This was echoed by some of the other students who took part in this study, as their comments suggested that when stressed their dyslexic symptoms got worse (M1.12; M2.41). The students, for instance, expressed that when working under stress 'things get muddled in the head', 'head gets cloudy', they 'feel tired', (N3.15) 'make more mistakes' (N4.140; N7.50), 'stutter', 'get confused' (N7.50), 'mix up' their 'words', 'get spelling wrong' (M2.41), can't focus on all the information, become anxious (N6.70) and/or lack confidence (N4.140; Illustration 7a). The head becoming cloudy, with the student unable to focus on all the information imply the lack of concentration. Another student (M5.116) also expressed difficulty in organising herself when working under stress on a busy postnatal ward (Section 3.9) all of which means stress could be debilitating for the individual with dyslexia. This stresses the need for regular breaks and avoidance of overload of information to reduce the chance of getting stressed at work.

The lack of confidence, however, may have been due to the context in which the students worked and/or the challenges associated with dyslexia (Section 3.12; Section 3.12.1), other than stress in this study. In other studies, the mentor's attitude towards the student in relation to the need for more time to carry out tasks or spilling an expensive drug, (Morris and Turnbull, 2006), and low self-esteem and performance anxiety (Kolanko, 2003; Price and Gale, 2006; Crouch, 2008), contributed to lack of confidence. Performance anxiety related to administration of drugs and drug calculations (Child and Langford, 2011), also



contributed to the lack of confidence in the participants with dyslexia. These findings, are supportive of those of this study. It has been postulated that 'the self-concept', that is what we are, is shaped by factors including feedback we receive from others which lead us to discover 'who and what we are and what we are like' (Parkes, 2005, p.293). This is said to incorporate our body image, self-esteem and the ideal self, the latter of which reflects 'the person we would like to be' (Parkes, 2005, p.293; McLeod, 2014). We might adopt an image that is noted by others in any particular role and as that image (public self) becomes dominant, the real private self may be concealed (McLeod, 2014). This may be true of some of the students in this study as although they lacked confidence in themselves (private true self), they managed to conceal this and portrayed themselves as confident (the ideal self -McLeod, 2014) and which were reflected in their mentors' comments in their portfolios. This may well have been their way of coping, even so, this was not explored.

6.6 Multitasking

Some of the students in this study also reported that they found it difficult to multi-task, such as listening, writing, and/or observing the patient at the same time (Section 3.7), when taking history during initial assessment of a patient although did not necessarily associate this with stress. For one student midwife (Section 3.7), it was to do with difficulty in looking at the clock whilst conducting a delivery. For other students answering the phone, which meant listening whilst writing down information at the same time also proved very difficult (Section 3.7) and unfortunately led to the adoption of a maladaptive strategy such as avoidance in answering the telephone. This could have been detrimental to patients receiving care so has implications for nursing and midwifery practice (Section 3.11). Other UK studies (Crouch, 2008; Newlands, Shrewsbury, and Robson, 2015) and those of Australia (Ryan and Brown, 2005; Ryan, 2007; Table 6b), found that the students with dyslexia in their studies also had difficulties when multitasking and which is supportive of the findings of this current study. However, the Australian studies related to students with learning disabilities in the academic settings. Examples of multitasking that was problematic for the nursing students with dyslexia in the clinical areas included listening to someone talk on the phone whilst writing at the same time (Crouch, 2008), which supports findings of the current study. Nevertheless, it differed from other examples such as taking notes during ward rounds (Newlands, Shrewsbury, and Robson, 2015), and/or taking notes during a class lesson (Ryan and Browns, 2005). Interestingly, the students with dyslexia in all those studies adopted a maladaptive strategy such as avoidance except that, some of the medical students and others in the academic settings, took audio notes to help them cope.

Since handing over period involved listening and writing at the same time, it also did prove challenging for some of the students (Section 3.7). They therefore devised and/or used



existing strategies and resources to combat problems encountered during handovers, examples of which were the 'to-do lists' (Section 4.2) and already prepared handover sheets on which they drew tick boxes (Section 4.2.1). These were useful for organising and prioritising their work and they ticked the boxes as they dealt with each case. For some students, the use of varied coloured pens proved particularly useful in helping them to recall and organise the way in which to manage their patients. The use of already prepared handover sheets in the placement areas meant that the students in this study were able to concentrate more on listening to the patient information being given orally.

In the current study, what was particularly striking when confronted with multitasking on a busy ward were reports from one student who wrote information in the wrong notes as well as put her information in an illogical sequence (Section 3.11). This raised issues of safety as it was at variance with the NMC Code (2015b, Section 10) in relation to the keeping of clear and accurate records. Notably however, the student, like the others in this study, had heightened awareness of the impact dyslexia was having on her practice and had outlined the strategies she needed to adopt to avoid such errors. Unfortunately, comments from her portfolios were not handed in so there was no evidence of her mentors' perceptions on her record keeping.

6.7 The student midwives and provision of care during labour

The perceptions of the five student midwives in this study on the impact of dyslexia on their practice when providing care to women in labour were of particular interest (Section 3.10). Some of their accounts for instance, reflected the challenges they encountered when assessing and/or giving care to women in labour. Reference was made to the difficulty in working out the time when working on nights, (Section 3.10.2) as this caused confusion with the 24hour clock and time so the student involved did not like working night time. In contrast to that finding, however, one student nurse from a study by White (2007) preferred working night time as it meant they had more time to complete notes. This highlights the difference in the work for midwives in that babies are born around the clock, so there is no guarantee one would have a quiet time to complete notes on nights.

References were also made to difficulties related to abdominal palpation, performing artificial rupture of membranes during vaginal examinations (Section 3.10.2) and performing vaginal examinations in general (Section 3.10.2). Performing vaginal examinations seemed to have impacted negatively on one student midwife in particular, although she was in her last year of education and training to become a midwife. She got confused when ascertaining the left and/or right anterior or posterior parts of the pregnant woman's pelvis. She was also confused about the lie of the unborn baby in relation to the maternal pelvis 'most of the time' (Section 3.10.3). Her expression that it took her a 'bit of



time to get things into perspective' implies that she now has a better grasp of things during vaginal examinations howbeit other comments she made suggested that she was still finding such assessments difficult. Nonetheless, the student seems to have tried to overcome this by taking time to draw what she believed she felt after carrying out a vaginal examination to help her work out the foetal position in relation to the maternal pelvis. Unless an ultrasound scan is taken to confirm or refute the findings, however, its accuracy could only be assumed (Shetty *et al.*, 2014). The researcher did not explore whether ultrasound scans were performed on the pregnant women in labour to ascertain foetal positions during labour. Research showed error rates of 50%-76% with vaginal examinations where ultrasound scans had been used as the gold standard (Akmal *et al.*, 2002; Sherer *et al.*, 2002; Akmal *et al.*, 2004; Shetty *et al.*, 2014). Since the error rate is high, it could be assumed that difficulty in ascertaining foetal positions during vaginal assessments is common amongst students as well as midwives, with or without dyslexia. The expressed difficulty described by the student in this study therefore, may not necessarily be due to dyslexia, although this is only an assumption. Nonetheless, the issues related to ascertaining position were also mentioned in relation to the positions adopted by the mother for delivery (Section 3.10.3), and this was mentioned by the same student who reported having great difficulty ascertaining positions during vaginal examinations.

Another student reported of the challenge of having to recall and write down information after dealing with precipitate labour (Section.3.10.3). Whilst these might be difficult tasks for others as well, it is logical to assume that it is perhaps more challenging for the student with dyslexia who has been identified as having slow processing speed as well as short term memory. As one student puts it, delivering babies 'is daunting; a big responsibility' (Section 3.10.3). This finding also adds to the body of knowledge as there does not appear to be any research literature on the experiences of student midwives (with dyslexia), in relation to the provision of care to women during precipitate labour. There was only one paper entitled 'The experience of precipitate labour', and it was to do with the experiences of the pregnant women who had precipitate labour, dated 1996, although it was first published on line in 2007 by Rippin-Sisler, implying the need for research on that topic in relation to students with dyslexia.

Irrespective of the context within which either the nursing and/or the midwifery students with dyslexia worked, some of the challenges they experienced did raise issues of safety and which is the next point for discussion.



6.8 Safety issues: Reported errors and potential errors

Previous reports by Shellenbarger (1993) and by Duffin, (2001) expressed concerns regarding errors or possible errors in relation to drug administration, however, none of their reports were based on research. Concerns regarding possible errors were also expressed in a research report by Roberts, Butler and Bouriscot, (2005), however, Shrewsbury (2012) argued that there was no evidence to support those views.

As already mentioned, however, some of the nursing and midwifery students in this study read words and/or phrases as well as number backwards. This, compounded by writing backwards, which also meant number switching (Section 3.2.2; Section 3.11.1), seemed to have impacted on the students' practice during drug administration. Some students, for instance, reported that they made wrong statements when speaking and/or recording dosages of drugs. An example of this was given by one student who stated that he sometimes wrote 'mls (millilitres) instead of milligrams' even though he had 'given the right dose' (Section 3.8.1). Another reported that he might say '12 instead of 21 milligrams'. These are findings which raised safety issues regarding drug administration (Section 3.8.1; Section 3.11). The NMC (2010e) requires the 'clear and accurate' recording of all medicines administered. There were no reports of errors in drug calculation, however, drug administration competence is complex and involves the acquisition of certain knowledge and many skills (Sulosaari *et al.*, 2012), including the recording of what had been given, so it could be said that drug administration errors seem to have been made. Nonetheless, all the participants with dyslexia were still in training and were aware of their safety issues, so apart from double or triple checking, they also had their mentors or other staff to check their work in order to minimise or avoid errors. This is in line with the NMC Code which requires individuals 'to seek help from suitably qualified staff' (NMC, 2015b, Section 13.3, p.11). It needs to be borne in mind, however, that any support given should not at any time 'compromise or be at the expense of patient safety' (NMC, 2015b, Section 8.7, p.8)

6.8.1 Numeracy and drug administration issues

Some of the students in this study also had problems with mathematics and so used calculators to help them with their drug calculations, and this was more common amongst the nursing students than in the midwifery students (Section 3.8). This was interesting, as their comments did not particularly reflect calculation of figures or of drugs dosages. They were more to do with number switching, either when writing or saying it out loud. Although this was not suggestive of dyscalculia, previous and current research reports (White, 2007; Crouch, 2008: 2010; Jordan, McGladdery and Dyer, 2014) suggest that some individuals with dyslexia also have dyscalculia so used calculators. In a comparative study of 28 people with dyslexia and 71 without, Jordan, McGladdery and Dyer (2014) also found that



the participants with dyslexia (inclusive of nurses) had higher mathematics anxiety than those without. This might be the reason for the use of calculators or avoidance by some of the students in this study although this was not explored.

The use of a maladaptive coping strategy, such as avoiding drug administration rounds when the student was nearing the completion of her studies, undoubtedly raised questions related to safety (Section 3.8.1; Section 4.7), competence and fitness to practise. That student midwife's dyslexia seem to be more severe than the other students' as she reported many challenges, yet she was reluctant to disclose her disability for fear of losing opportunities for a job in future. There was, however, no submission of her portfolio, so one is not aware of mentors' perceptions on her practice and whether or not there had been issues related to safety. One could only assume that she was achieving her competency standards related to drug administration, since she was still on the course at the time of the research. Interestingly, Price and Gale (2006) also reported one student with dyslexia who explained all the tactics she used to avoid getting involved in drug administration. She did so to the point that it became apparent that she lacked knowledge and skill in drug administration procedures (Price and Gale, 2006), and like the student midwife in this study, she was halfway through her final year of education and training. Such revelations from participants posed a dilemma as on the one hand, there was commitment to maintain confidentiality (BERA, 2011; UoN, 2012), whilst at the same time ensuring that no action or omission on one's part is detrimental to the patient (NMC, 2015b) and requiring sensitive handling.

During training and education to become nurses and/or midwives, the direct supervision of students by their mentors or other qualified staff, especially for drug administration is mandatory (NMC, 2009; 2010) and in keeping with NMC Code (2015b) and drug administration standards (NMC, 2016) to preserve safety. However, upon qualifying, they need to be able to function without supervision and are expected to help train other students. Two people, one of whom must be registered, usually check drugs and administer them, upon qualifying. However, it is not customary to have another nurse to check what goes into the care plan or patients notes in terms of recording what was given, except where the drugs given come under the Misuse of Drugs Act (1971), and the Misuse of drug regulations (MDR, 2001; NMC, 2010e). With ongoing expansion of the midwife's role and the promotion of services in which the community will recognise and trust the midwife as the expert in normal pregnancy, labour and postnatal care (Jill Rogers Associates, 2010), knowledge and skills to deliver such care competently and safely are paramount. Both nurses and midwives are also expected to provide consistently high quality safe care. The above findings, therefore, have implications for practice in terms of the transition from a student's status to becoming registered and obtaining a job as a nurse



or midwife, which stresses the importance of the mentors' role in objective assessment (Vinales, 2015).

Participants in McCandless Sanderson-Mann and Wharrad (2006) also reported that they had difficulties with drug administration. However, those in White's study (2007) had difficulties with both mathematics and with drug administration, findings which are supportive of those of the current study. However, no drug calculation or administration errors were reported by those researchers. Morris and Turnbull (2006) also reported that 16 of their 18 participants 'recognised the potential for unsafe practice' during their study. Although eight of those participants apparently had dyscalculia, their heightened awareness of their problems led them to seek confirmation of accuracy of drug dosages with their mentors through checking and double-checking, a finding that is also supportive of some aspects of this study. Following a study of 16 nursing and midwifery students (with dyslexia) and 3 mentors into the experiences and needs of the students with dyslexia, Crouch (2008) also reported some errors in relation to numbers and figures to do with a cheque that was written. Although there were no reports of drug calculation errors, it reflects errors related to numbers which is supportive of findings of the current study and which has implications for practice in both nursing and midwifery fields. The above findings also have implications for the practice of other healthcare workers, with particular reference to drug prescribers, inclusive of medical doctors (Locke *et al.*, 2015).

It needs to be pointed out however, that many factors including 'unclearly written prescriptions,' 'lack of experience' and 'working under stress' seem to be the main contributing factors towards drug administration errors in nursing (Wright, 2013, p.35). This also seems to be the case for doctors and trainee doctors, as research showed that errors related to drugs prescriptions are common in the medical field for all grades of doctors. However, it is more prevalent amongst medical students and are mostly to do with drug dosage (Dornan *et al.*, 2009; Ryan *et al.*, 2014), the causes of which are multiple, none of which are attributed to dyslexia. Therefore, there is a need to 'move away from the culture of blame' as advocated by Wright (2013, p.35).

6.8.1i Newlands, Shrewsbury and Robson's (2015) medical students with dyslexia also reported they sometimes made errors when writing up blood transfusion forms, read or wrote numbers in reverse order. Another had problems with the CHI (Community Hospital Index) numbers on blood transfusion bags. Concerns about the possibility of errors during ward rounds amongst those medical students in that study were also raised, all of which have implications for practice, since any wrong information in any of the patients' notes, or on blood transfusion bottles could lead to the mismanagement of patients. Getting wrong information on blood transfusions forms, bags and/or bottles, for example, can lead to the



transfusion of the wrong bag of blood for a patient and which can be fatal. However, the seven participants in Newlands, Shrewsbury and Robson's (2015) study were all first-year students and were self-aware of their weaknesses so were hypervigilant and had developed compensatory strategies such as double or triple checking their work and the correction of their mistakes.

6.8.1ii During a comparative study of 14 student radiographers with and 23 without dyslexia, post processing images after taking x-rays also proved challenging to a radiographer student with dyslexia who claimed writing 2s instead of 5s and 8s instead of 3s, which meant the quality of the x-ray was affected (Murphy, 2011). However, the student concerned blamed tiredness for the mistakes (Murphy, 2011). The non-dyslexics in that study also reported tiredness, though they did not report making any mistakes and which led Murphy (2011) to express some concern regarding same, all of which has implications for healthcare.

6.8.2 Wrong information

In the current study, there were also reports of errors such as writing information in the patients' notes in the wrong order, and/or writing the wrong information in the correct notes or in the wrong notes (Section 3.11.1) all of which could have led to mismanagement of patients. However, not all the portfolios of the students were submitted and none of the comments in the available practice portfolios or comments from the students were suggestive of any form of mismanagement as a result of the errors mentioned in this study. Notably, however, comments from all the nursing and midwifery students in this study suggest that they had heightened awareness of their problems so were hypervigilant.

6.8.3 Lack of familiarity

All the above challenges experienced by the students may or may not have been exacerbated by the lack of familiarity (Section 3.2.4). Having to move from one placement to another as part of the training and education to become a registered nurse or midwife, for instance, also meant lack of familiarity with the new information and tasks which posed new challenges to the students with dyslexia. Apart from the already mentioned stressors, inadequate preparation has been identified as a contributory factor to stress (Banovcinova and Baskova, 2014). The participants in this current study were all in training to become either a nurse or a midwife. That, coupled with a change of mentor on each ward, all of whom worked differently (Howlin, Halligan and O'Toole, 2014), and somehow expected the student to carry out tasks in the way they instructed them, required the student to work in different ways. This seems to have had some impact on the students' practice, which in turn contributed to some of the stress they experienced. These findings seem to be supported by those of Bell (2010) who found that a move from one job to another for



individuals with dyslexia proved challenging. This is because a move from one practice area to another means a change in the working pattern and which requires individuals with dyslexia to work in different ways (Cooper, Clegg and Suffolk, 2009; Bell, 2010). Although the sample used by Bell (2010) was small (n=6) and the research was about people from different employment backgrounds, her study was related to the transition of a group of adults with dyslexia who experienced different challenges as they changed jobs, so are relevant. The move from one placement to another for the nursing and midwifery student, however, is necessary to facilitate the achievement of required experience and NMC standards, skills and attitudes (2009; 2010; 2015c; 2015d) prior to registration as a nurse or a midwife.

6.9 Disclosure issues

Despite the perceived impact of dyslexia on their practice, the students reported that they enjoyed working in the practice areas, although certain factors led to issues to do with disclosure for some of them (Section 3.13; Table 6c. In this study, for example, disclosure tended to be selective and depended on the circumstances which were thought to be appropriate. Disclosure for instance, depended on the length of time the student was allocated to a mentor (Section 3.13.3) and/or on past experiences (Section 3.13.1). This finding is consistent with those in a wide range of UK studies in the healthcare fields (Blankfield, 2001; Wright and Eathorne, 2003; McCandless, Sanderson-Mann and Wharrad, 2006; Morris and Turnbull, 2006; 2007; 2007a; Price and Galle, 2006; Crouch, 2008; Child and Langford, 2011; Ridley, 2011; Stanley *et al.*, 2007; 2011; Sanderson-Mann, Wharrad and McCandless, 2012; Evans, 2014; Green, 2014; Hargreaves, 2014; Shrewsbury and Robson, 2015; Table 6c). In Howlin, Halligan and O'Toole's study (2014a), however, all the students in their study did disclose their disability and were influenced by personal and environmental factors. Notably the sample used (four) in their study was small and not all of them had dyslexia.

The fear of being judged as stupid, due perhaps to the stigma attached to dyslexia, also seemed to have been another barrier to disclosure and it's a finding that is supported by those from other researchers in the healthcare fields on the topic (British Medical Association, 2004; BMA, 2009; Morris and Turnbull, 2007; Crouch, 2008; Evans, 2014). However, with increased awareness and education of staff on disability issues, and what dyslexia involves, it is hoped that attitudes will change. This was notable in some of the comments from the students in this study and one student in particular was surprised about how staff at the university received them in their first week by demonstrating empathy. However, a recent report suggests this might not be the case with other employers or organisations (Green, 2014). The lack of knowledge about dyslexia might hinder employers



from showing empathy and from providing appropriate support for their employees as found by Green (2014) which stresses the need for all employers to have good knowledge of dyslexia and about other disabilities.

Interestingly, four of the five student midwives and only three of the seven student nurses in this study seemed concerned about disclosure. A couple of the student midwives in this study also expressed fear that they might be considered incapable which might jeopardise their chances of getting a job upon qualifying, if they disclose to their mentors (Section 3.13.2). This was also true of the medical students (Newlands, Shrewsbury and Robson, 2015), and of other students with disabilities in higher education settings (Dearnley, Elliott, Hargreaves *et al.*, 2010; Green, 2014) and healthcare workers such as teachers, social workers, nurses (Stanley *et al.*, 2011). In this study, the reasons for fear of losing their job upon disclosure were not explored. However, the perceptions of the student midwives highlight the fact that midwifery education and training is extremely demanding and past experience showed that the degree of autonomy expected of a qualified midwife is different to that for a qualified nurse. Unlike qualified nurses, every qualified midwife also has a supervisor of midwives who oversees her progress and monitors care standards to help ensure that quality care standards are maintained (NMC, 2016a). However, that mandatory arrangement is in the process of being changed to 'a new model of non-statutory supervision' (NMC, 2016b, p.1; Department of Health, 2016). It will be interesting to know if, upon employment, disclosure is made to their supervisor of midwives and/or managers although further research might be needed to explore this.

The NMC's (2008) requirement to declare oneself as fit, in good health and having good character at the point of registration and in readiness for working as a qualified nurse or midwife, is in effect a way of ensuring disclosure (Storr, Wray and Draper, 2011). This does not mean that upon completion of education and training as a nurse and/or a midwife, and then on recruitment for work, individuals will disclose to their employers even where policies are in place to encourage disclosure. The problem with dyslexia is its invisibility (Burns and Bell, 2010; De Beer *et al.*, 2014) and according to Blankfield (2001), the associated anxieties are also not visible, hence individuals could choose not to disclose.

6.10 Positive impact of dyslexia on the students' practice

There were, nonetheless, positive aspects of the perceived impact of dyslexia on the nursing and midwifery students' practice in this study (Table 6c) and which made it interesting during the data collection processes. All the students perceived practice as a strength (Section 3.14; Table 6d) as, although they had encountered challenges, they found the actual hands-on part of the course easier than the academic aspects of it so they



had enjoyed their experiences. The repetition of procedures also meant becoming familiar with tasks, therefore helped to enhance their performance (Verfaellie *et al.*, 2008), which in turn helped them to cope (Section 3.14.4). Positive experience and high levels of confidence were linked to early identification and the provision of appropriate support in a comparative USA and UK study of adults with dyslexia and a controlled group of non-dyslexics (Logan, 2001; Logan, 2009). In that study, they noted that the confidence levels were higher in the entrepreneurs with dyslexia in the USA than those in the UK and suggested that the reason for the difference might have been for the early identification and provision of appropriate support for people with dyslexia in the USA as compared to that in the UK. In the current study, however, the stages at which dyslexia was identified in the students were not explored although they attributed their positive experiences in part, to the unique skills they have, as well as to the support they received from their mentors, and from other staff from both academic and practice settings.

Some of the students also reported being very confident although they did not link this to support received but rather to the unique strengths they believe they have because of dyslexia. One student, for example, said that having dyslexia meant working slowly which he felt was good for his chosen field of nursing (learning disability), stating: 'I think it found me!' He sounded very confident in what he does and believed that he has got 'a bit of a talent' (Section 3.14). Unfortunately, his practice portfolio was not handed in as promised, so one was unable to validate his comments. His statement nonetheless implies that dyslexia is an asset. Interestingly, 11.2% of the qualified nursing staff surveyed by Morris and Turnbull (2007a) perceived dyslexia as an asset although the reason for this was not explained by the authors.

Empirically, one had in the past also received commendations for student nurses with dyslexia, which came in from patients they had nursed in the clinical practice areas and which implied that their practice was outstanding. This was also true of two of the participants of this study who perceived themselves as creative, having problem-solving skills, as well as the ability to think outside the box (Table 6d), some of which were validated by comments made by mentors in their practice portfolios (Section 3.14i). According to two different mentors, one of the students had also developed own techniques for working with individuals, 'came up with key tools that could be implemented', as well as made changes to the medication charts, all of which support the students claims that they have innovative skills (Section 3.14.1; Table 6d) and which is an asset to both nursing and midwifery practice. The above findings also seem to imply that the skills of the students were being tapped into, a concept that is described as 'goodness' of fit' and which results in self-efficacy (Gerber, 1994; Bandura, 1997; McLoughlin and Leather, 2013, p.224). As McLoughlin and Leather put it, a person who feels competent at their job is more likely to



feel satisfied and become more effective at work, which could explain why many of the students expressed satisfaction with their practice despite the challenges they experienced, although this was not explored.

Being creative was a finding also echoed by the nursing students with dyslexia in Ridley's study (2011) and by 13.8% of the 116 qualified nurses with dyslexia in Morris and Turnbull's study (2007a; Table 6d). According to Wiles (2001), individuals with dyslexia have creative and problem-solving abilities that are transferable to different fields of work and are useful skills in the nursing field. In a comparative study of 14 radiography students with and 23 radiography students without dyslexia, Murphy (2011) also found that the student radiographers with dyslexia felt they have creative minds and unique strengths such as being able to understand equipment more quickly than their non-disabled counterparts. These findings were however on Likert scale questionnaire answers based on in-depth semi-structured interviews and not based on observation (Murphy, 2011).

Others had very good reports from the mentors in their portfolios one of which described a student nurse as 'very caring and conscientious', 'very much liked by her patients', and as 'one who strives to deliver very high standards of care' (Section 3.14.3). Being caring was also echoed by the nurses with learning disabilities in Ryan and Brown's study (2005) in Australia but not in any of the others. Other students were noted as exceptional (Section 3.14) and reliable (Section 3.14) by their mentors all of which support the students' claims that practice is their niche. It is also a reflection of the students' enthusiasm to succeed the latter of which is a factor linked to success (Goldberg *et al.*, 2003) and has implications for practice.

Another finding that is congruent with those of this study is from a 20 years longitudinal study of predictors of success in individuals with learning disabilities in California (USA), Goldberg *et al.*, (2003). The participants in that study reported having special talents and stressed their importance in enhancing a positive identity and which was also perceived as an antidote to the negative impact of their disability. Moreover, their success was dependent on them capitalising on their special talents (Goldberg *et al.*, 2003). In order to promote a successful transition from higher education into employment, therefore, particular attention needs to be paid to any talents and/or strengths healthcare students and practitioners with dyslexia claim to have and to use them in ways that will benefit the nursing and midwifery professions.

6.10i Seven of the students also perceived themselves as having compensatory skills including very good prioritising and organising skills, some of which were validated by mentors' comments in the students' practice portfolios (Table 6d). Price and Gale (2006) and Ridley (2011) also reported that the nursing students with dyslexia in their studies



developed compensatory strategies which seem to correlate with findings of this study although no examples of the said skills were given. One striking point related to one of the participants in this study, who had tried to become better organised when working in clinical practice because she was aware that she had poor organising skills (Section 3.14.2). Her efforts seem to have paid off as she said she is now very organised and is able to plan her work effectively as well as prioritise without any problems.

Her claims that she is 'very organised' was validated by comments made in her practice portfolios by her mentors (Section 3.14.2), a finding supported by those of Newlands, Shrewsbury and Robson, (2015) in the medical field, and by those of Murphy (2011) from the field of radiography. Although those two studies were not related to nursing and/or midwifery and no observation was involved, all the participants were adults with dyslexia in the healthcare settings.

One of the student midwives also reported that she had no problems at all with writing and she was also praised for her excellent written work and exceptionally good record keeping on practice placements by two different mentors (Section 3.2). However, other comments she made revealed that she had problems with spelling (Section 3.2.1) although she may have developed strategies to overcome these. Other students in this study also claimed to have very good communication and interpersonal skills which compensate for the difficulties they have in writing and the mentors' comments in the students' practice portfolios seem to validate those claims. It is important to note that although the researcher did not observe the students in this study, the mentors whose comments validated those of the students' claims, had worked alongside the students and their comments were based on their observation of the students at work. Nonetheless, it was not a comparative study. Very good face-to-face communication skills and relational skills are important and indeed essential in every aspect of nursing and midwifery practice at all levels (Crouch, 2005), and the achievements of such standards form part of the NMC (2009; 2010; 2015) requirements for both students and staff.

In a comparative study of 36 entrepreneurs with and 66 entrepreneurs without dyslexia, three corporate managers with and 34 without dyslexia, 'the dyslexics perceived themselves as being better at communication than their non-dyslexic counterparts' (Logan, 2009, p.343). This finding supports those of this study although Logan's study (2009) was undertaken within a different context. A comparative study conducted by the European Commission (2013) on the inclusion of talented employees with disabilities in different firms in Austria, Poland, Finland, Estonia, Spain, Germany, Sweden, Luxemburg, and France, many of whom had very good oral communication skills, resulted in good skill mix and improved performance. Although this research was undertaken in the business sector,



good communication skills are essential for every job and highlights the importance of using the strengths that individuals with dyslexia have in the work place. Such soft skills are also transferable and, in the business world, serve as inspirational network and resources building tools which assist in the achievement of a vision (Logan, 2009).

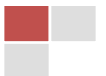
This, coupled with the ability to be innovative, problem solve, as well as think outside the box, could explain the high incidence of dyslexia in entrepreneurship 'than in the normal corporate management population' in both UK and in the USA (Logan, 2001; cited by Logan, 2009, p.334). Such skills may also have contributed to the ability of those with dyslexia to grow their companies faster than their non-dyslexic entrepreneurs. In contrast, Logan (2009) attributed the rapid growth of the companies ran by people with dyslexia, to their ability to delegate, an essential skill for managers which implies that the entrepreneurs with dyslexia are also good managers. The ability to delegate is a useful and an essential skill for both nurses and midwives due to their managerial roles. In one's own research, however, none of the students claimed to have good delegating skills.

Another claim by some of the students in this study was that they have very good photographic memory and observational skills (Section 3.14.3i; Table 6d) and which are aided by the use of varied coloured pens for some of them. The ability to observe patients, especially during an assessment or giving care in any format is essential as it allows one to note whether the patients' spoken words are congruent with their body language. It also allows one to make general observations including the patients' clothing, state and colour of their skin (Crouch, 2005). The use of other senses such as that of smell whilst observing, can also help in the assessment of the patient's hygiene status (Crouch, 2005). All the above-named skills are, therefore, of great importance in both nursing and midwifery practice.



Table 6d: Findings from this study compared with those from the international arena: perceived positive impact of dyslexia on the nursing and midwifery students' practice

Research findings →	Practice is a strength; empathic	Caring and conscientious	Creative; innovative	Safety conscious	Good verbal/inter-personal skills	Good observational skills/ photographic memory	Good organising skills	Good prioritising skills	Problem-solving skills	Develop coping strategies
Other Nursing / midwifery fields – with dyslexia UK										
• Illingworth K (2005)				x						x
• Morris and Turnbull (2006)										x
• Price and Gale (2006) Comparative				x						x
• Morris and Turnbull (2007a)	x		x	x						x
• White. (2007)										
• Crouch (2008; 2008a)										x
• Crouch (2010) Comparative										x
• Child and Langford (2011)										
• Ridley (2011)			x							x
• Kolanko (2003) (USA)										
Medical students/ Drs with dyslexia. UK. Rowlands (2013)										
• Newlands Shrewsbury and Robson (2015)				x			x	x		x
Radiographers with dyslexia										
• Murphy (2008; 2011) Comparative	x		x	x		x observational skills	x			x
Students with other disabilities UK & Australia										
• Hargreaves et al., (2014) Healthcare students and practitioners	x heightened empathy (p.310)									x
• Ryan and Brown		x caring			x					
• Dearnley et al., (2010)										



6.11 Coping strategies

As reflected in Chapters four and five and in the above discussion, the students used varied coping strategies encompassing those that were available, or those taught to them and/or those which they developed themselves, to help them overcome any perceived impact of dyslexia on their practice. This is congruent with findings by other researchers (Price and Gale, 2006; Morris and Turnbull, 2006; White, 2007; Crouch, 2008; 2010; Ridley, 2011; Sanderson-Mann, Wharrad and McCandless; Newlands, Shrewsbury, and Robson, 2015; Table 6e) who also found that the participants with dyslexia developed self-managing strategies to help them cope. However, not all the strategies referred to in those studies were similar to those in this current study and vice versa.

In the transactional model of stress and coping, (Lazarus and Opton, 1966; Lazarus and Cohen, 1977), when faced with a stressor, the person endeavours to solve the problem by attempting to make changes in the environment or oneself and which is described as problem-focused coping (Lazarus and Folkman, 1984; Lazarus, 1993). Nilsson (2007, p.9) explained more simply that problem-focused coping tends to be 'directed at managing' or changing 'the problem that is causing the distress. Strategies that are adopted include those that modify a person's behaviour. In order to avoid or reduce negative feelings, the person might also attempt to change the meaning of the event which is known as emotion-focused coping (Lazarus and Folkman, 1984; Fornes-Vives *et al.*, 2016). Emotion-focused coping, therefore, is for 'regulating the emotional response to the problem' (Nilsson, 2007, p.9) and strategies used include altering one's mind in order to tolerate or eliminate the stress (e.g. relaxation exercises or distraction). Problem-focused coping have been shown to be more effective than emotion focussed coping in reducing stress amongst nurses (Rowe, 2006). Coping, has therefore, been defined as the 'ongoing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person' (Lazarus, 1993, p.237; Hudson, 2016, p.303). Simply put, coping is about how individuals seek and apply solutions to problems that occur because of a stressor.

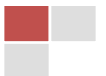
6.11.1 Heightened self-awareness; hypervigilant

In this study, the development of coping strategies seems to have come about as a result of the students' heightened self-awareness of the perceived impact of dyslexia on their practice, implying that the ways in which dyslexia impacted on the students were perceived as stressors although this was not explored. Their heightened self-awareness led them to become safety conscious, hence hypervigilant by double and/or triple checking their work themselves, with mentors and other staff, peers, and/or with patients as appropriate (Section 4.1.1; Section 4.1.2; Section 4.1.3- Table 6e).



Table 6e Coping strategies developed and/or used: overview of findings from this study compared with studies that showed use of similar coping strategies (UK, Australia and USA)

Research findings →	Self-aware Vigilant; double-check	Repeat	To do lists	Write it down; audio notes	Tick boxes	Coloured pens	Used colour codes to identify drug type, names, doses etc.	Reduce amount of writing e.g. stickers/birth summaries/ prepared HO sheets	Drop-down menu	Shorthand/symbols Mnemonics	More time	Neuro-linguistic programming Anchoring	Technology e.g. laptop Calculators, Dragon Dictate Dictaphone	Coloured overlays for reading	Avoidance	Helpful mentors/ staff
Other Nursing / midwifery fields – with dyslexia UK																
• Illingworth K (2005)	x	x		x												
• Morris and Turnbull (2006)	x			x							x				x	
• Price and Gale (2006) Comparative	x					x plus coloured stickers									x with drug admin	
• Morris and Turnbull 2007a	x			x							x					
• White (2007)	x BNF, dictionary			x				x Already prepared handover sheet-listed names of patients		x	x		x Spell check device	x		
• Crouch (2008; 2008a)	x	x									x		x	x		x
• Crouch (2010) Comparative																x
Child and Langford (2011)											x					
• Ridley (2011)																
• Sanderson-Mann et al (2012)	x			x							x		x			
USA nurses with dyslexia													x			
• Watson (1995)																
Kolanko (2003)											x					
Medical students/ Drs with dyslexia UK /Sweden																
• Bjorklund 2011													x			



• Newlands Shrewsbury and Robson (2015)	x										x		x		x	
Radiographer with dyslexia																
• Murphy (2008; 2011) Comparative	x										x				x	
<u>Students with other disabilities UK</u>																
• Rankin <i>et al.</i> , (2010)																
• Dearnley <i>et al.</i> , (2010)	x			x									x			x
<u>Students with (Learning difficulties) Australia</u>																
Ryan and Brown (2005)													x			
Ryan (2007)													x			



Midwives are expected to work in partnership with the woman so double-checking aspects of care to get clarification and ensure safety is good practice and in line with the midwives Rule 5 (NMC, 2012, Rule 5, Section 2). Double-checking with their mentors or other qualified staff is in line with the NMC Code (2015b, Section 8.1, p.8) which requires nurses and midwives to 'respect the skills, expertise, and contributions of colleagues' by 'referring matters to them' as appropriate to enhance effective practice. Where appropriate dictionaries and other appropriate means, including British National Formulary, were also used to try and avoid and/or minimise mistakes. In Morris and Turnbull's study (2006; Table 6e), the student's heightened awareness was reported to have promoted safety which is supportive of the findings in this study to some extent. The students in this current study were particularly concerned about their documentation and/or drug administration processes and wanted to get them right to ensure patients safety. Such findings seem to be congruent with other UK research findings from the nursing/midwifery fields (Crouch, 2008; 2008a; 2010; Ridley, 2011; Sanderson-Mann, Wharrad and McCandless, 2012).

Ten years into a longitudinal study, in the USA of factors that promote success in individuals with learning difficulties, the successful participants were noted to be more proactive and demonstrated greater self-awareness (Goldberg *et al.*, 2003). They also demonstrated self-acceptance of their disability, emotional stability and use of effective social support systems than those who were classified as unsuccessful in their early adulthood (Spekman, Goldberg and Herman, 1992; Raskind *et al.*, 2002; Goldberg *et al.*, 2003). This implies that the nursing and midwifery students, who demonstrated heightened self-awareness, are likely to become successful in their education and training as nurses and/or midwives. Becoming successful also implies safe practice some of which were reflected in portfolio comments on the students, written by their mentors. Mentors comments for instance suggested that some of the students 'were reliable', 'innovative', 'worked well independently', were competent', 'well-liked by the patients and 'exceptional', 'excellent team workers' who 'strived to give high standards of care' (N6.P; N4.P3; N4.P5; M3.P3; M3.P4; M3.P6; M4.P3; N3.P5; N5.P5). Other factors such as perseverance and the setting of appropriate goals and their implementation were also necessary in becoming successful (Raskind *et al.*, 2002; Goldberg *et al.*, 2003). Currently, as part of their practice, nursing and midwifery students have to set goals in relation to the competency standards they need to achieve, plan how they intend to achieve them, as well as implement such objectives and receive feedback from their mentors, all of which are factors that contribute to success (Goldberg *et al.*, 2003).

Some of the checking over involved use of computers and calculators to spell check, or calculate drugs (Section 4.1.2; 4.3; 4.4.2; Table 6e) in the academic, as well as practice areas. These findings are supported by those of other researchers in the UK (White, 2007;



Crouch, 2008; Dearnley Elliot, Hargreaves *et al.*, 2010; Sanderson Mann *et al.*, 2012; Newlands, Shrewsbury and Robson, 2015), the USA (Watson, 1995), Australia (Ryan and Brown, 2005) and Sweden (Bjorklund, 2011; Table 6e) from nursing, midwifery, social care and medical fields. In contrast to those findings, however, Price and Gale (2006) and White (2007) found that such mobile technology is not always easily transferable into the placement areas. Besides that, Watson's (1995) survey is dated and the survey was carried out in a different context on nursing students with varied kinds of disabilities. However, a large sample of 247 programmes were used to explore the prevalence of disabilities and the support provided for those with disabilities on the nursing programmes (Watson, 1995). Furthermore, their results, showed that other students with disabilities, apart from those with dyslexia, also used different kinds of technology to help them spell check, write or calculate drugs in clinical practice, the findings of which correlate with those of Dearnley, Elliot, Hargreaves *et al.*, (2010). That said, care should be taken to avoid technology overload as this could defeat the purpose for which the technology is supplied (Price, 2006; Bjorklund, 2011). According to Price (2006), technology overload could be distracting and serve as a barrier to learning and to coping strategies that individuals with dyslexia normally use for managing their problems, so should be avoided. Contrary to above findings however, McPheat (2014) stated that students with dyslexia do not use assisted technology in clinical placements due to embarrassment and that they do not want to highlight their dyslexia. His statement was not based on any evidence and was rather misleading considering that his paper was a review.

In this study, the students also asked for help, and/or for clarification when necessary from their mentors, other qualified members of staff, and/or from their peers (Table 6e). This might be considered as good practice as the participants were still in training and were required to work under the supervision of their mentors and other qualified staff (NMC, 2009; 2015). The medical students with dyslexia in Newlands, Shrewsbury and Robson's study (2015) also safe-netted by double-checking their work with and asking for help from their peers, apart from the use of calculators and spell checkers, which is supportive of one's own findings. The above findings seem to contrast those of McCandless, Sanderson-Mann and Wharrad (2006) who reported after a comparative study that the students with dyslexia were less likely to ask for help if they did not understand something. In spite of such efforts, there were reports of some errors in this study (Section 6.8) and has implications for practice. Nonetheless, the participants were at different stages of education and training.

Illingworth's study (2005) also showed that, some nurses with dyslexia received support from both patients and peers with their spelling, although the work of one of them was frequently checked by senior colleagues. Interestingly, three of the nurses were studying



for a first degree and the other two were studying for a Master's degree (Illingworth, 2005, p.42). Since nurses and midwives are required to support colleagues who are encountering health or performance problems, it is arguable that the decision of senior colleagues to check the work of one of the nurses in Illingworth's study was in line with the expected NMC professional standards of practice and behaviour (2015, clause 8.7). Apart from that, nurses and midwives are required to be aware of and to take necessary 'steps to reduce the likelihood of mistakes, near misses, harm and the effect of harm if it takes place' in order to 'reduce as far as possible any potential harm associated with' their 'practice' (NMC, 2015b, p.14). It is, therefore, arguable that the heightened awareness, hence, the hypervigilance of the nursing and midwifery students and qualified nurses, and the subsequent strategies they adopted to manage their problems when in clinical practice are in line with the NMC Code of practice (2015). The decision by senior colleagues to frequently check another qualified nurses' work (Illingworth, 2005) however, seems to conflict with the NMC's requirement for practitioners such as nurses and midwives to work effectively without supervision, at the point of registration, with or without reasonable adjustment (NMC, 2009; 2010). This raises issues of fitness to practise, albeit their actions were in the interest of their patients as well as that of the practitioner with dyslexia.

6.11.2 Strategies that reduce writing and/or facilitate memory recall

Since the students' main areas of concern related to writing and forgetfulness many of them chose or developed coping strategies that meant less writing as well as those that facilitate memory recall to minimise and/or avoid errors whilst working in the clinical placement (Sections 4.2-4.4). The majority of those strategies were referred to as very helpful and/or useful (Sections 5.1-5.2). Apart from the use of technology to help them with the spell check, for example, the students used readily available handover sheets (on which they placed tick boxes), drop-down menu, address labels, and stickers such as vaginal examinations and/or birth summaries, which meant less writing for them (Section 4.4; Table 6e). The use of already prepared handover sheets also meant the students were able to listen to what was being said although one did not explore what information was on those sheets. White (2007, p.41, Table 6d) also reported of the use of already 'printed handover sheets with the list of patients to be cared for on that shift' by the students with dyslexia in her research paper and which seems to correlate with the findings of this study. Moreover, those computer-generated handover sheets also had names of the nursing team responsible for the patient, which meant a reduction in the amount of writing the students did. However, White (2007) did not state how the handover sheets were disposed of and when. The use of printed handover sheets is not a new concept. The use of already prepared handover sheets with tick boxes which the students found useful in reducing the amount of writing and which meant they were able to pay attention to what was being said



to them during handover, were new findings. Their use also meant not having to multitask, which was a stress factor for some of them (Section 6.5.4). The handover sheets acted as 'to-do lists' as it allowed them to get organised, prioritise as well as tick the boxes as the identified tasks were accomplished. The above findings therefore add to the body of knowledge and have implications for practice.

Although experience has shown that the strategies such as stickers, including labour care and/or postnatal care summaries have been in use in some units, there is no evidence of the evaluation of such resources and strategies, by students with dyslexia in practice; therefore, the findings also add to current knowledge. The use of dropdown menus in the nursing fields is also in line with the current shift towards the use of computers and storage of patients' information, although problems arise when the systems fail. It also means individuals get out of the habit of writing and the movement from one nursing or midwifery field of work to another where such systems are not in use could exacerbate the problems related to record-keeping, so this should be borne in mind

They also seem to have been constantly engaged in writing things down either in notebooks, pads, scrap paper in an emergency, with the use of short hand including use of diagrams such as heart for pulse by some students, in order to avoid their forgetting the information (Section 4.3; Table 6e). Nonetheless, this was shown to be common practice amongst other students and staff with dyslexia and/or with other disabilities (Illingworth, 2003; Morris and Turnbull, 2006; 2007a; White, 2007; Sanderson-Mann, Wharrad and McCandless, 2012; Dearnley, Elliot, Hargreaves *et al.*, 2010). It might also be common practice amongst students and staff without disabilities.

What was striking however, was the use of varied coloured pens to make the information they write down stand out and highlight information in their notebooks, on scrap paper and handover sheets in the practice areas to assist with recall and management of their work (Section 4.3.1; Table 6e). Their usefulness was emphasised by some of the nursing and midwifery students in this study (Section 5.2). Interestingly, only one of the papers from the nursing sector (Price and Gale, 2006) echoed this finding (Table 6e) although the use of coloured pens was not linked to recall in that study. Apart from that, evidence suggests that colour does influence memory performance as participants in a study reported 5-10% better performance with the use of colours over the use of black and white (Wichmann, Sharp and Gegenfurtner, 2002; Vernon and Lloyd-Jones, 2003). Colour has also been shown to be helpful with the memorisation of certain information by increasing attention level (Pan, 2012; Dzulkifli and Mustafar, 2013) and this might explain why the students in one's own study found use of varied coloured pens useful in assisting with recall of information. However, coloured images and objects were used in the other studies and



none related to the use of varied coloured pens in writing. In addition to that, in their review of papers, Dzulkifli and Mustafar (2013) found that the effectiveness of colour on memory performance is conditional in that the same colour must be used in encoding and retrieval phases if it were to have effect on memory performance, however, this was not the case in this study. The use of different coloured pens to help recall of information in this study, therefore, adds to the body of knowledge, since the students did not have to use the same colour for encoding and retrieval of information. One student also used colour to help identify drug types, dosages and route of administration in this study. This seems to be supported by anecdotal and dated claims that a nurse with dyslexia used colours and size of bottles to determine which drugs to administer (Duffin, 2001). Although the use of colour codes to help identify drug names, types of dosages and routes, of administration might be controversial due to possible safety issues (Section 3.11.3i), these findings highlight the importance of colour to the nursing and midwifery students with dyslexia and which adds to the body of knowledge.

In this study, the Dictaphone was also used for taking audio notes particularly in the academic setting and its use in relation to practise was as a reference diary (Table 6e). The Dragon Dictate, on the other hand, was used as a reflective diary so both types of equipment served as aide-memoires as well as helped to reduce the amount of writing in the practice areas (Table 6e). This is supported by findings by Price (2006), Dearnley, Elliot, Hargreaves *et al.*, (2010) and by Newlands, Shrewsbury and Robson (2015). The provision of reasonable adjustment should thus take such findings into account, although their use has ethical implications in relation to confidentiality, since there is a need to delete any information recorded in relation to practise as soon as possible. However, these aspects were not explored in the study.

6.11.2i Neuro-Linguistic Programming Anchoring (NLPA)

The use, by one student nurse of Neuro-Linguistic Program Anchoring (NLPA- Carey *et al.*, 2010; Elston, 2012; Table 6e) to help recall of information was also of particular interest (Section 4.2.3). The Neuro-Linguistic Programming Anchoring (NLPA) is the process by which memory recall or other responses can be associated with some stimuli such as a gesture, touch and/or sound (Carey *et al.*, 2010; Elston, 2012; Bandler, Roberti and Fitzpatrick, 2013). Anchoring is said to be similar to the 'conditioning technique used by Pavlov to create a link between the hearing of the bell ringing and salivation in dogs' (Dilts, 1999, p.1). According to Elston (2012), anchoring in Neuro-Linguistic Programming is described as the 'process by which a gesture, touch or sound' is applied 'at the peak of a state, either in oneself or someone else'.



In one's own study, the student nurse reported that he used gestures such as touching the shoulder, crossing fingers or other gestures to remind him of steps in procedures such as giving an injection, or peg feeding, for example, and which he claimed were very effective, hence helpful (Section 4.2.3). However, the student was observed demonstrating this in a simulated situation only during the collection of data and not in real life. Although it seemed useful and might be employed to help other students with dyslexia, it is unclear how this could be safely applied during a sterile and an invasive procedure. The student will have to think about and apply other forms of stimuli in such procedures to ensure safety.

The use of NLPA seems to have gained popularity internationally (Tosey and Mathieson, 2010) even though it has been discredited by some authors due to its methodological errors (Norcross, Koocher and Garofalo, 2006; Davies, 2010; Witkowski, 2010). Although reference is made to the use of NLPA in relation to dyslexia (Bull, 2009), this was in relation to four out of 148 children with dyslexia and it does not state how it was used. Its use in relation to nursing activities in this study also seems to be the first of its kind and so adds to the body of knowledge, howbeit it was used by only one student. Other information on the use of NLPA is, therefore, placed in Appendix 4 (p.322).

6.11.3 Support from mentors and staff

In this study, although the students seem to have partly attributed their positive experiences to the unique skills they have, they also expressed satisfaction from the support they received from their mentors, and from other staff from both academic and practice settings (Section 4.7; Table 6e). The perceptions of some of the students for example, suggest that such support was very much appreciated, as it helped them cope, as well as feel accepted in the academic as well as practice settings and are factors which have been shown to facilitate success in adults with dyslexia (Goldberg *et al.*, 2003). Some of the comments made imply change in attitudes towards individuals with dyslexia and the students reported they felt welcomed right at the onset of their training and prior to going out into placement. This is probably the result of increased awareness and knowledge of what dyslexia is about through training and updating of mentors' knowledge on the subject. In a previous study, Crouch (2008) also reported that the students perceived their practice experience positively where their mentors and other staff were supportive. However, the lack of disclosure by some students in that study (Crouch, 2008) meant inappropriate support for some. In other studies, the availability and accessibility of personal academic tutors, were linked to very good support (Drew, 2001; Walsh, Larson and Parry, 2009; Crouch, 2010), factors which were probably enhanced by the friendliness and approachability of the lecturers and have implications for practice. Although those studies were in the academic settings, the assessment and provision of support for the student nurses and midwives with dyslexia or other disabilities involve the personal academic tutor



students support staff, dyslexia support tutors, placement facilitators and mentors, hence, the need for awareness of factors that enhance these processes. The students with disabilities in Dearnley Elliot, Hargreaves *et al.*'s study (2010) also felt well supported although there was a gap between arriving at the university and the provision of support. Although the reason for this was not discussed, the lack of disclosure by some students as shown in many of the studies, might have contributed to such a gap. This stresses the need to encourage disclosure to members of staff at the university as well as to mentors in the clinical placement areas. Ultimately, the responsibility for disclosure lies with the student.

6.11.4 The useful strategies, resources, and poster guidelines

On the whole many strategies such as those already provided and/or were readily available were used apart from those that the students developed (Chapter 4) themselves many of which were simple and effective. However, only some of them were highlighted as particularly useful, very good and/or useful (Chapters 4 and 5), some of which were on the poster guidelines which was evaluated separately as part of this study by both students and mentors. In summary, the strategies and/or resources that were noted as particularly useful and/or helpful were those that the students claimed to have facilitated recall of information and included to-do lists, university coloured pens, writing things down, and the Neuro-Linguistics Programming Anchoring, although the latter strategy has been discredited by some authors. Since writing was a major issue for the students, they also valued strategies that helped with particular emphasis on stickers (already printed information such as address labels, birth summaries, postnatal care summaries with tick boxes), apart from repeating things and checking over their work. Although within different settings, in the study of six adults with dyslexia, Bell (2010) also found that an introduction of an adjustment such as use of tick boxes was helpful to one adult working in a care home and which is supportive of the findings on this study.

The said poster guidelines (Chapter 5, Table 5a) for mentors supporting students with dyslexia in clinical practice (Crouch 2009; 2009a; 2010a) which were evaluated as part of the study, was also positively evaluated as a useful tool (Chapter 5, Section 5.5.1; Table 5c) by both students and mentors. It was, for example, noted as a teaching and learning guide as apart from the clarity of the guidance notes, it served as a guide for planning and implementing support for the students with dyslexia in the practice areas (Table 5c; Section 5.5.1; Section 5.5.2), whilst raising awareness of what dyslexia is about and the strategies to use (Section 5.5.3). Interestingly though, not all the students had seen the poster before the face to face interviews, however, they reacted very positively to its design and content and many expressed that they would like to see it in full use on placement by both mentors and students interactively (Section 5.5.4). Although some will like a reduction in the amount



of information on the poster guidelines many identified other strategies, especially those they found very useful although not on that poster, to be included on any future guidelines (Section 5.5.4). These, and any recommendations made by the students and the mentors were considered in the design of another tool to be used by both mentors and students with dyslexia in clinical practice.

6.11.4i Adaptive coping strategies

Adaptive coping strategies have been shown to be a major determinant of success for adults with learning disabilities (Reiff *et al.*, 1995; Raskind *et al.*, 1999; Golbrerg *et al.*, 2003; Nalavany Carawan and Rennick, 2011). The participants in those studies summoned and accessed help when needed as well and perhaps it explains why some of the students in this study seemed to have coped well in practice despite the perceived negative impact of dyslexia on their practice. This seems to have been enhanced by their determination to succeed. It will, therefore, be interesting to know of the eventual outcome for the students in this study. Furthermore, Everatt, Steffert and Smythe (1999) found that individuals with dyslexia who overcome their difficulties successfully develop coping strategies that might be transferable to entrepreneurship; a notion supported by Logan (2009). This was also echoed by Fitzgibbon and O'Connor (2002), who advocated that successful individuals, who have been identified as having dyslexia, develop compensatory, coping and means of overcoming their deficits. Although such findings were not in the field of healthcare, it has implications, in that any coping strategies developed and used by the nursing and midwifery students with dyslexia and which were found useful are likely to be transferred upon successful completion, and registration, into practice areas as qualified nurses. It is important to note that all the strategies identified on the said poster guidelines for supporting students with dyslexia in clinical practice, and many of the strategies developed and/or used by the students in this study, were adaptive. The nursing and midwifery students with dyslexia should, therefore, be encouraged to develop and use adaptive coping strategies as many such strategies have also been shown to be useful to the students in this study.

It is noteworthy, however, that individuals face different problems within different contexts at different times and the coping strategies they adopt is dependent on the context in which the problem occurs and this changes over time (Nilsson, 2007; Hudson, 2016). This is because 'what is attended to and the threats themselves change' (Lazarus, 1993, p.236). This was evident in some aspects of the findings in this study. The type of information and professional jargon used when providing care for a woman in labour, for example, differed from the type of information used when caring for women and their babies in the postnatal period. This meant different challenges in relation to documentation and record-keeping for the student midwives (Section 3.6), and the use of different coping strategies on each of



those placements (Section 4.4; Section 4.4.2). Although this was perhaps dependent on available resources, it supports Lazarus' idea that coping strategies constantly change due to change in problems and the context within which they occur (Lazarus, 1993; Hudson, 2016). Unfortunately, a maladaptive strategy such as avoidance was also used in different contexts, the possible consequences of which have already been discussed (section 3.11v; Section 6.8.1). It is important to raise awareness that no omission or action of individuals should be detrimental to patients and clients in care, so such strategy should be avoided whilst encouraging the development and use of adaptive coping strategies.

6.12 Theories generated

The theories that emerged from the above findings and discussion are that;

- Dyslexia is perceived to have both negative and positive impacts on the students' practice and although numerous themes were generated, the issue that concerned the students the most appeared to be the challenges they encountered in relation to documentation.
- The students' knowledge of dyslexia and their heightened awareness probably enhanced their understanding of the challenges they faced in the placement areas. Hence, they were able to share their strengths as well as their shortfalls.
- Placement was found enjoyable despite the many challenges faced, including errors of documentation and of drug administration, daunting labour care provision, and the cascading effects of stress in a busy environment.
- The students understanding of the perceived negative impact seems to have led them to become over vigilant, and develop compensatory and problem-solving skills, including the development of simple strategies in a non-stressful environment, tap into their talents, as well as use available helpful resources.
- The heightened understanding, coupled with the many adaptive strategies used, seemed to have helped them manage their perceived and or actual impairment. These findings, coupled with the many positive comments by the mentors leads one to make a tentative theoretical statement that; the dyslexic students who might be perceived by themselves and others as having a learning disability, might not be impaired in practice due to their self-awareness, hypervigilance, and coping strategies.

6.13 Implications of the research findings for fitness to practise and future employment

Discussion to date indicates that problems related to writing, reading, poor short-term memory, and processing speed amongst others, seem to be persistent in the nursing and midwifery students. This is also true of other adults with dyslexia, such as medical and radiography students, qualified nurses, healthcare assistants, university lecturers and



teachers. In other words, the identified difficulties persist in adults with dyslexia in general irrespective of their professional status and/or background. Arguably, however, unlike teachers and other professionals, the nurses, midwives, and other healthcare workers have a corporate role to deliver safe and competent care and treatment to patients and clients and their families, although their roles differ from those of each other. The life of a patient is dependent on the nurse's ability to safely and competently administer drugs (Shellenbarger, 1993) and to manage a patient through holistic assessment, care planning, care provision, and evaluation of that care safely. This is also true of midwives, and of other healthcare professionals.

All verbal and non-verbal behaviours seem to have meaning implying that all behaviours have meaning (Crouch, 2005). This means all nursing activities could be described as communication (Crouch, 2005). In other words, all aspects of the management of patients and clients are underpinned by communication which stresses the importance of effective communication processes, in line with NMC requirement (2015b). The use of effective communication and interpersonal skills is, therefore, crucial in the management of all patients and clients in our care. Errors in written communication and in verbal statements made by some of the nursing and midwifery students and by other healthcare practitioners with dyslexia in relation to drug administration, and/or record-keeping on patients are all forms of poor communication skills and are at variance with the NMC's requirement for the maintenance of accurate records. Apart from that, there were issues related to multitasking and working under stress, all of which raised some concern about patients' safety and fitness to practise issues. Although the students were still in training, the very nature of dyslexia and the perceived impact it has on their practice probably explains why individuals with learning disabilities have difficulty in acquiring and keeping a job (De Beer *et al.*, 2014) and highlights the importance of early identification of the condition.

6.13i The need to be 'disabled enough' to qualify for disability benefits (Roulstone, 2004, p.24) is reflected in the Equality Act's (2010) definition of disability and which is dependent on formal assessment and identification and which should be carried out prior to the students going on to placement. This should be followed by the provision of reasonable adjustments (Equality Act, 2010: Howlin, Halligan and O'Toole, 2014). Such support has been shown to enhance the students' ability to access learning opportunities with resultant greater satisfaction in the work place (Halligan *et al.*, 2015). It does, however, require an ongoing liaison between academic staff, the student with a disability and staff in the practice areas (Crouch, 2008; 2008a; Sumner, 2012). Greater satisfaction at work has also been linked to a positive experience and high levels of confidence in other employees with dyslexia in the USA (Logan, 2009). The ongoing liaison between staff and students, and the continued provision of appropriate support of the student with dyslexia when working in



the practice areas, therefore, cannot be over-emphasised (Sanderson-Man and McCandless, 2006; Price and Gale, 2006; Hargreaves and Walker, 2014; Howling, Halligan and O'Toole, 2014).

However, reasonable adjustments could only be provided upon disclosure. This means disclosure should be encouraged during application to and on successful enrolment as a higher education student. The hidden nature of dyslexia, compounded by the fear of discrimination (Morris and Turnbull, 2007; Crouch, 2008) and/or loss of opportunity for employment (Dearnley, Elliott, Hargreaves *et al.*, 2010; Stanley *et al.*, 2011; Hargreaves 2014; Green, 2014), means many students tend not to disclose. Moreover, not every student who discloses to the university also discloses to their mentors in the practice areas. An environment of trust, honesty and openness should, therefore, be fostered to encourage disclosure (Rankin *et al.*, 2010).

There is evidence to suggest that practical support for individuals with specific learning disabilities or with other disabilities, is available in the academic settings although this is not always the case in clinical practice settings as shown in the studies of health and social care students and staff with disabilities (Wright, 2000; Price, 2006; Dearnley, Elliot, Hargreaves *et al.*, 2010; Rowlands *et al.*, 2013). Mobile technologies have been shown to be beneficial to students and practitioners with dyslexia by assisting them with their spelling, memory and organisation problems (Price, 2006; Dearnley, Elliot, Hargreaves *et al.*, 2010). Their audio functions have also been shown to act as an alternative to writing so their use should perhaps be encouraged where necessary to help promote safety. However, the devices were costly and although the students 'liked the mobility and size of the laptops in their home, they disliked taking them into lectures as they were too heavy and ended up using other mobile devices (Dearnley, Elliot, Hargreaves *et al.*, 2010). In this study, some of the students also used Dictaphone or Dragon Dictate in the academic settings and in practice although their use in the practice areas seems to have been in terms of a diary. Other strategies and resources that help reduce the amount of writing and which were positively evaluated in this study, included drop-down menus, stickers or standardised forms such as already prepared birth summaries, postnatal summaries that only required ticks, so their use should perhaps be considered. Their use may help reduce costs of provision of support as they are readily available. Unfortunately, not all the clinical areas have such strategies and/or resources. The use of such resources and any other reasonable adjustments made should be research-based as well as be tailored to individual needs.

The requirement to provide reasonable adjustment for individuals with disabilities, including those with dyslexia, seems to be good practice, although it is costly (Dearnley, Elliot,



Hargreaves *et al.*, 2010). Moreover, there is limited evidence of their effectiveness particularly in the clinical settings. It is arguable that many of the strategies developed and/or used by the students in this study to help them cope are simple and cost effective so have implications for practice. Moreover, the development and use of adaptive strategies could enhance learning as well as minimise or avoid errors particularly in clinical practice and in turn enhance patients' safety, which is one of the main aims of healthcare (NMC, 2015). The use of adaptive coping strategies has also been linked to the achievement of success in the USA (Raskind *et al.*, 2002; Goldberg *et al.*, 2003). Hence the development of effective albeit simple coping strategies should be encouraged. This will enhance the participation of individuals in their management in line with the United Nations Convention on the Rights of Persons with Disabilities (Schulze, 2010) and with the WHO report (2011), as well as promote their independence. This does not exempt organisations and employers from their role in providing reasonable adjustment to the healthcare workers with dyslexia, and should be seen as complementary to and essential for achieving success in the provision of healthcare. This will nonetheless require longitudinal research on nursing and midwifery and other healthcare students with dyslexia in the future. Walker *et al.*, (2013, p.55) also suggested the use of 'educational approach to risk management' which means any support that might enable students or staff with disabilities and to those who help them in any way. It is, therefore, vital to raise awareness of the possible impact of dyslexia on the student or employee, coping strategies that might be developed and/or available resources that have been identified as useful or helpful.

6.13ii Safeguarding and promoting the interest of patients as well as that of the nursing profession could be achieved by the provision of appropriate support for individuals with disabilities including those with dyslexia to help them achieve competency standards safely. It could also be achieved by the continuous monitoring of all students, with or without disabilities and/or reasonable adjustments. Besides that, a preceptorship programme to support the individual for up to a year upon qualifying (DoH, 2010; NMC, 2006a) cannot be overemphasised. Any weaknesses identified should be discussed with the student as well as with their placement facilitator, personal academic tutor and disability co-ordinator or support person where necessary and an action plan developed as to how the issue/s will be tackled, and by when. Having the boldness to fail a student in practice (Duffy, 2007; Vinales, 2015) when necessary is of equal importance and which highlights the need for objectivity in ongoing practice assessments. No action and/or omission on the part of any nursing or midwifery students or any healthcare practitioner should be at any time detrimental to the health status of a patient (NMC, 2015b). Should anything go wrong, the 'duty of candour' procedures must be applied by informing the patient, apologising, offering an appropriate remedy to put things right (if possible) and giving a full explanation



of what happened and the possible short and long-term effects of what happened as per NMC requirement (NMC, 2014c).

6.13iii Where the provision of appropriate support fails to remedy difficulties, particularly in relation to writing, reading and numbers, and which results in inaccurate record keeping, fitness to practise procedures should be followed although such procedures have been found to be inconsistent at local levels (Morris and Turnbull, 2006; Sin and Fong, 2008). Some organisations, for example, used the help of occupational health to assist in their assessment of fitness to practise and others did not although there were clear links between regulations, guidance provided 'by regulatory bodies and how decisions are made' (Wray *et al.*, 2005, p.12; Sin and Fong, 2008, p.648). What constitutes fitness to practise also seems to vary within the healthcare professions in the UK (Sin and Fong, 2007; 2008; Stanley *et al.*, 2011) and in different countries such as the USA (Marks, 2000; Maheady, 2004) and Canada (Sin and Fong, 2008). Stanley *et al.*, (2011, p. 20), for instance, noted the use of different terminology such as 'good health and good character' for the nursing and midwifery professions; whereas, the terms 'mental and physical fitness' were used by social workers in Great Britain, when defining fitness to practise. Whatever procedures are followed, it is imperative to ensure that individuals with any form of disability, seen or unseen such as dyslexia, 'have equal right to access higher education', and to 'professional opportunities' (Shrewsbury, 2014, p.11) and employment whilst at the same time remembering that any decision made should not be detrimental to the health of the patient (NMC, 2015).

All qualified nurses and/or midwives have a duty of care to their patients, irrespective of their ranks and/or status, years of experience as practitioners, or the environment in which they work, whilst working in collaboration with other members of staff and other healthcare practitioners, to promote the provision of competent and safe management of patients and clients in their care. At the end of their education and training nursing and midwifery students are required to declare their fitness to practise. Such declaration of fitness to practise by any student in healthcare is dependent on their ability to practise effectively, competently, safely and independently as well as on good health and good character, at the point of registration (NMC 2006; 2008a). Hence the objectivity of the final assessment by mentors, of the student, with or without disability and/or reasonable adjustment, cannot be overemphasised which highlights the importance of the mentors and their responsibilities in the training and education of nursing and midwifery students.

6.13iv Conferment of any qualification upon any of the nursing and midwifery students, with or without a disability also implies their achievement of the competence standards at the required level and that they are capable of providing safe competent management of patients and clients in their care without supervision. Interestingly however, the NMC



(2006) advocated that, such conferment does not necessarily mean the individual is fit for practice. This is probably because, not every individual is aware of his or her disability if any and those who are aware do not always disclose, implying that for some individuals' disclosure may not come to light until they have secured a job. Upon securing a job, the employer is also obliged to provide reasonable adjustments in line with the Equality Act (2010) requirements. However, as previously stated, reasonable adjustments could only be made upon disclosure of a disability. However, clause 60 of the UK Equality Act of 2010 suggests that it is unlawful for an employer to make enquiries about the health of a potential employee prior to the offer of a job. This implies that individuals with disabilities are responsible for disclosing their disabilities to their potential employer although they are not legally obliged to do so (Murphy, 2008; Storr, Wray and Draper, 2011, Nolan *et al.*, 2014). Failing to disclose means the employer will be unaware of the employees' health and which highlights the complexity of the application of legislation in relation to nurses and midwives and indeed for any employees in the healthcare fields, particularly those that provide direct management (care and treatment) of patients and clients. Since there is no way of knowing of an individual's disability prior to her being employed except through disclosure, there is likely to be a gap between when the individual discloses (if they decide to do so) and when they are offered and receive appropriate support, inclusive of reasonable adjustment in line with the Equality Act (2010). Depending on the severity of the individual's disability and the possible impact of that on their practice, that period could prove to be extremely challenging for the individual with a disability and at worse, mismanagement or death of a patient. According to Mackenzie (2012, p.182), an employer should be able to 'pick up' signs that an employee may have dyslexia even if the employee is not aware they have. The Employment Act would be breached if a tribunal discovers a particular adjustment should have been provided even where the employer is not aware of the adjustment (Mackenzie, 2012). This highlights the complexity of the Equality Act and the need for organisations and employers to be knowledgeable about dyslexia and the different types of disabilities, as well as of the possible adjustments that could be made.

6.13v On a positive note however, some of the students with dyslexia identified themselves as caring and/or conscientious; others have very good organising, communication, interpersonal, and/or empathic skills, aspects of which were validated by their mentors' comments in their portfolios. Some of them were also notable for creativity and their practice was described as outstanding despite the challenges they experienced because of dyslexia. Moreover, each of the students is a unique individual and despite the challenges, demonstrated potential for success. The determination of individual fitness to practise either as a student or upon securing a job as a qualified nurse or midwife should therefore, be judged on their disability and the challenges they face as a result, as well as on how



they manage to cope with such challenges and on their ability to safely achieve the standards and competences required. Employers should also see such strengths in individuals as talents and/or gifts they could tap into since all the above qualities are desirable in nurses and midwives as well as essential to the effective and safe management of patients and clients.

'Working in a friendly and diverse workplace,' has been shown to be beneficial to employers in Austria, Poland, Finland, Estonia, Spain, Germany, Sweden, Luxemburg, and France, as it enhanced employees motivational levels which led to creativity and innovation (European Commission, 2013). Consequently, economic performance was boosted (European Commission, 2013). This seems to contrast emphasis placed on academic competence, particularly in England which according to Wolf (2002) 'may not necessarily promote economic growth' (Bell, 2010, p.217). In the European Commission study, however, the reference to diversity meant employing people from diverse backgrounds, regardless of age, gender, disability, race, religion sexual orientation or ethnic origin and which is in line with the aims of The Equality Act in the UK (2010a; 2010b). However, only Finland, France and Spain, seemed to have included employees with disabilities although it is not made clear what types of disabilities the individuals had.

Moreover, in order to be effective, the car industry, namely PSA Peugeot Citroen in Spain, 'entered into partnership with 'educational institutions' and other 'public employment services' all of which resulted in recruiting individuals from diverse backgrounds inclusive of individuals with disabilities with best talents, which in turn led to 'a better skill mix' (European Commission, 2013, p.14). Apart from that, some of the European businesses that were studied made necessary adjustments for the individuals they employed from the diverse backgrounds. Finland, for example, offered their employees work that matched their capacity by adjusting the work content and hours (European Commission, 2013). Creating a friendly working environment could lead to a positive experience which has in turn been linked to high levels of confidence (Logan, 2001; 2009). Although, a good move which proved successful to businesses, it could be said that only some of the initiatives taken might be transferable to nursing, midwifery or indeed any of the healthcare professions. It is arguable that the lives of the patients and clients that come for care and treatment are in the hands of the healthcare professionals such as nurses, midwives, doctors, health visitors, physiotherapists, radiographers, social workers, and occupational therapists since their lives are dependent on the safe competent management of their conditions from such professionals. As such, whilst the creation of a friendly working environment and reasonable accommodations are necessary for healthcare practitioners with disabilities and should be created, it is of vital importance that nursing, midwifery and medical standards are not compromised at any time. Nurses and midwives are expected to



engage in all aspects of care either during their education and training to become qualified or upon registration as nurses and/or midwives, except where an individual has not had training for a particular procedure or task (NMC, 2015). Practically, it is impossible to change the work content for individual nurses and midwives. However, negotiations between employers and employees of the NHS and other healthcare settings could result in the offer of jobs to employees in less acute areas in healthcare, especially for staff with dyslexia to avoid stress and its debilitating effects on the individual. Besides that, employees could negotiate with their employers what hours they wish to work.

6.14 Summary

The review of research papers on the topic studied, the findings of which were compared and contrasted with those from this study showed that, dyslexia is perceived to have both negative and positive impacts on the students' practice. Having insight into their condition, coupled with the students heightened awareness, meant that they were able to share their perceptions of how their practice was impacted by dyslexia. The students also seemed to have enjoyed their placement despite the many challenges they faced. Out of the many challenges faced, difficulty with writing appears to be the issue that concerned the students the most. Some comments made by the students raised safety issues and disclosure remained an issue for some. They also seemed to have become stressed and frustrated with cascading effects when working in a busy environment.

Despite the many challenges reported by the students, comments from their mentors suggested that many of them coped very well and which implied safe practice. Many perceived practice as a strength as some had developed compensatory and problem-solving skills. Others portrayed themselves as creative, talented, caring, and conscientious with very good interpersonal and relational skills, some of which were validated by mentors' comments in their portfolios. The perceived negative impact of dyslexia on their practice, also seemed to have led them to become safety conscious, hence over-vigilant, and developed simple and/or used other strategies and resources. These, together with good mentor support seemed to have helped them to cope, which led to the tentative theoretical statement that, although perceived as having a learning disability, dyslexic students might not be impaired in practice due to their self-awareness, hypervigilance and coping strategies (Section 6.12). All the findings have implications, and which have been discussed (Section 6.13).



CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.0 Introduction

Having discussed the findings in chapter six, and their implications for practice, the overall conclusions and the recommendation are presented in this chapter. Also presented and discussed as part of the recommendations in this chapter, is the toolkit that was developed as a result of the findings of this study. This is followed by reflection on the whole research process.

7.0.1 Conclusions

It is noted from Chapter one that, the rationale for the development and conduct of this research is multifactorial. Firstly, the promotion of equity by the introduction of the DDA, (1995- superseded by the Equality Act of 2010), the widening participation movement, and the modernisation of the NHS, have led to an increase in the number of people with disabilities who access and/or enrol on to UK higher education courses (Section 1.1; Section 1.1.1). Employment figures for people with disabilities has also increased (Section 1.1.1). This has implications for practice in that both nursing and midwifery education and training courses are demanding (Section 1.2).

7.1 Besides that, the nature of dyslexia (Section 1.3;1.4;1.5), and some available evidence, suggested that dyslexia impacts on the students academically and that it might also impact on their practice in the clinical areas (Section 1.7). Nursing and midwifery students are also required to be fit to practise with or without disability and/or reasonable adjustments without supervision at the point of registration. This stresses the need for the provision of appropriate support for students with dyslexia, in line with the Equality Act requirement (Section 1.9). However, the provision of reasonable adjustments is dependent on disclosure. It is evident that not many students disclose their disability and those who do so, do so selectively (Section 1.9), implying that the provision of support for such students might not necessarily be appropriate.

Provision of appropriate support also requires nursing and midwifery lecturers and the qualified nursing and midwifery staff, who work alongside the students in the clinical areas, to have good knowledge and understanding of dyslexia (Section 1.9) and how it might impact on students' practice. Such knowledge should be research-based. Literature on the chosen topic appears to be growing in the field of nursing, however, literature on the subject in the field of midwifery remain almost non-existent. It is also evident that support



and resources in the academic settings is well established for the students with disabilities including those with dyslexia, yet evidence for strategies used for supporting such students in clinical practice is limited, particularly in the midwifery fields. There is also very little in terms of booklets or toolkits specifically for individuals with dyslexia working in the clinical settings (Section 1.9).

Research also suggested that some students with dyslexia developed and used coping strategies, yet there was little to suggest an evaluation of any coping strategies and/or resources they use (Section 1.9). This research was, therefore, thought necessary in order to explore the perceived impact of dyslexia on the students' practice and on any strategies, they develop and/or use. This included a formal evaluation of the 'poster guidelines' developed (by the researcher) for mentors supporting students with dyslexia (Appendix 2H, p.288) and which have been in use for a while, to allow for its adjustment, or development of something new to help support students with dyslexia in practice.

7.2 The combined use of the embedded case study and the grounded theory approach involved the use of semi-structured interviews as part of data triangulation to collect and analyse data. This allowed some exploration, explanation and understanding of the perceived impact of dyslexia on the nursing and midwifery students in practice (Section 2.2-2.3). It also allowed one to gain insight into many of the coping strategies the students developed and/or used to help them. Some insight into the perceptions on the strategies and resources (inclusive of the poster guidelines) was also gained from both students and mentors.

This meant the set aims for the study were achieved and the research questions (Section 1.10) were answered despite challenges faced in the recruitment of a purposive sample and in data collection for the purpose of this study (Section 2.3.3). The data collected were also rich howbeit time-consuming and varied steps, including data triangulation, were taken to reduce threats to the trustworthiness of the research whilst enhancing the research rigour (Section 2.3).

7.3 The students' knowledge of dyslexia and understanding of how it impacts on their practice, coupled with heightened self-awareness led them to articulate their strengths as well as their shortfalls. The several themes that were generated (Chapters 3 to 6; Section 6) suggest that dyslexia is perceived to have both negative and positive impacts on the nursing and midwifery students when working in clinical practice. The perceived negative impact of dyslexia on the students' practice included challenges related to writing, reading, forgetfulness, slowness at performing tasks and problems with multitasking, poor organising skills, providing care to women in labour (for student midwives), stress,



frustration and lack of confidence and disclosure issues (Chapters 3 and 6). However, not every participant experienced all the challenges identified.

7.3.1 Although dyslexia is currently identified as a long-term specific reading disorder, the issue of greatest concern to the students was the difficulty they encountered in relation to documentation (Section 6.1-6.2). It was also evident that difficulty with writing seems to be a dominant characteristic for people with dyslexia irrespective of their professional or national background (Section 6.1.1). However, many of the available definitions of dyslexia did not mention this. Other people with or without other disabilities also experienced difficulty with writing howbeit for different reasons.

7.3.2 The difficulty with literacy, coupled with number and word switching (Section 3.2.2, Section 3.11.1; Section 6.8), forgetfulness (Section 6.4) and lack of familiarity (Section 6.8.2) seemed to have contributed to errors in documentation and drug administration errors despite the students' heightened awareness and steps taken to try and avoid errors. Whilst drug administration errors are common, there is no previous evidence of this except for a computer programme that suggested that 'the greater the tendency to dyslexia the poorer the potential cognitive ability to effectively provide skills associated with drug administration' (Millward *et al.*, 2005, p.341; Section 6.8). The use of colour codes to help remember drugs types, route and dosages, although controversial, highlights the importance of colour for students with dyslexia and adds to the body of knowledge (Section 6.11.2: Table 6b). The need for early identification of dyslexia, needs assessment and provision of appropriate support, based on individual needs, cannot be overemphasised.

7.3.3 Many of the above-named challenges, inclusive of working at a slow pace, are attributed to the speed of processing and lexical access (Section 6.3). Although the concept of performing tasks at a slow pace is not new and it confirms what is already known, examples of what tasks the students perceived themselves to be slow at, such as catheterisation and vaginal examinations, are findings that add to the body of knowledge (Section 6.3). However, there was no measurement of time nor the use of control group in this study. A comparative study in the future will, therefore, be useful to help confirm the findings.

7.3.4 For the student midwives, reference to confusion with time during night shifts, difficulty in remembering what to write after dealing with precipitate labour, diagnosing foetal positions and station particularly during vaginal examinations and delivery suggest that working with women in labour proved challenging (Section 6.7: Table 6c). There is some evidence, however, that difficulties related to vaginal examinations are common and the error rate is high. Notwithstanding, the findings add to current knowledge since there do



not seem to be any such reports from student midwives with dyslexia in the available literature (Section 6.7: Table 6c).

7.3.5 Exposure to working in a busy environment, coupled with challenges of working at slow speed whilst multitasking, and the lack of familiarity upon changing placement, also meant the students experienced stress at times, with cascading effects, such as feeling 'light-headed', 'confused', 'anxious', 'frustrated', becoming 'more forgetful', making 'more mistakes', 'lack of confidence' and/or stutter, and 'all the dyslexic symptoms got worse' (Section 3.6; Section, 3.6.2; Section 6.5; Illustration 7a). Nonetheless, each student is unique and illustration 7a below does not mean that each of the students experienced all the listed symptoms.

Non-stressful working environment

When working in non-stressful environment, although faces challenges, manages to develop strategies to overcome them. Practice is also a strength

- ✓ Tiredness
- ✓ Light headedness
- ✓ Confusion
- ✓ Unable to focus on all the information
- ✓ All the dyslexic problems go into one!
- ✓ More forgetful
- ✓ Make more mistakes
- ✓ Mix up words
- ✓ Wrong spelling
- ✓ Stuttering
- ✓ Anxiety
- ✓ Lack of confidence

Stressful working environment

When working on a busy placement, things get muddled in the head; head becomes cloudy; 'I become stressed and frustrated'; with cascading effect as listed below;

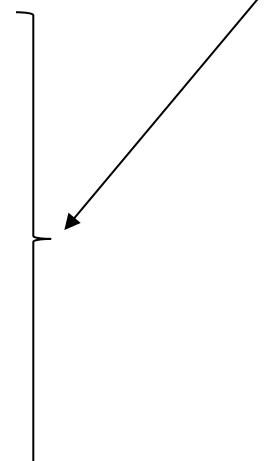


Illustration 7a: Summary of the students' perceptions of how dyslexia impacted on them when they worked in a non-stressful or in a stressful environment (Sections 3.6; 3.6.2 and 6.5).

7.4 Maladaptive coping strategies were used within specific contexts on occasions and which raised safety issues. In contrast to that, the perceived negative impact of dyslexia appeared to have led on to the development of heightened awareness, over vigilance, problem-solving skills as well as simple, yet effective coping strategies. They also enjoyed working in non-stressful clinical areas (Illustration 7a). The innovative, problem-solving, organising, caring and very good interpersonal skills of some of the students (Section 6.10), coupled with the excellent support by staff in academic and practice sectors and by their demonstration of empathy and acceptance of individuals with dyslexia and/or other disabilities, probably enhanced the students' experience. Disclosure did, however, remain an issue for some students.



7.4.1 The coping strategies developed and/or used included to-do lists, Dictaphone, already prepared handover sheets on which they placed tick boxes, as well as writing things down either in notebooks, diaries, or scrap paper, using varied coloured pens to help jog their memory, organise and prioritise their work (Section 6.4; Section 6.11). A strategy of interest was the use of the NLPA to assist memory when carrying out nursing procedures. Although this seems to work well, it is unclear how this might be applied safely during invasive procedures (Section 6.4; Section 6.11.2) since the technique used involved touching different parts of the body as a reminder of what to do next. NLPA seems to be popular, yet it has been discredited by some authors due to its methodological errors (Section 6.11.2; Appendix 4, p.322). Although it has been in use in higher education, there does not seem to be any evidence that suggests its use in nursing practice, hence it is another finding that adds to the body of knowledge.

7.4.2 Many of the coping strategies developed and used, and resources available such as drop-down menus, already prepared handover sheets, stickers (e.g. already prepared birth summaries), tick boxes, and those outlined on the poster guidelines (for supporting students with dyslexia in practice) were described as very good, very useful and/or helpful (Section 5.0; Section 6.11). As noted in Chapter 5, an analysis of the findings from the evaluative comments suggests that the poster is a very useful tool although this was its first formal evaluation. The findings on that, therefore, also add to the body of knowledge. However, both mentors and students would like it developed into an interactive tool that is perhaps integrated within students' pack (Section 5; Section 6.11.4). A new tool has therefore been developed taking into account suggestions made, the aims and characteristics of which are presented in Section 7.8.4.

7.5 Despite the challenges, including errors of documentation, some of the students seem to have worked well in a non-stressful environment. When working in a busy environment, however, the students experienced stress with cascading effects (Illustration 7a). Nonetheless, the students' knowledge of dyslexia, their heightened understanding of its impact on their practice, and their heightened self-awareness, appear to have led them to become hypervigilant. These coupled with the adaptive strategies they developed and/or used, seemed to have helped them cope well with their perceived and or actual problems. This led to the tentative statement that although the students who took part in this study might be perceived as individuals with learning disability, their practice might not be impaired, a notion that is reflected in the many positive comments made in their portfolios by their mentors. Despite expressions of excellent support from mentors and staff, disclosure for some students remains an issue, all of which have implications for practice.

7.6 Although the reporting of errors (Section 6.1; Section 6.8; Section 6.8.5) raised issues



of safety, the participants in this study were students at different stages of their education and training to become practitioners. Moreover, each of them is unique with different needs and some have creative, caring, excellent problem-solving and interpersonal skills that are transferable into any setting, especially upon employment. Support should thus be tailored to individual needs, based on assessment. Evidence suggested that success is linked to the use of adaptive coping strategies in adults with learning disabilities (Chapters 4-5). The evidence from this study also suggests that many of the coping strategies were simple, yet at little or no cost to educators or to the employer so their development and use should perhaps be encouraged. This should not exempt organisations or employers from their role in providing reasonable adjustments.

It is noted from the above findings that the research questions that were set to help address the aims of the study were answered as demonstrated in Table 7 below:

Table 7: Evidence that the research questions have been answered

Q1.	What is the perceived impact of dyslexia on the nursing and midwifery student in clinical practice?	<ul style="list-style-type: none"> Findings suggest that the students perceived dyslexia to have both negative and positive impacts on their practice (Chapter 3, Figures 3a and 3b Table 6a)
Q2.	How are any difficulties associated with dyslexia managed by the nursing or midwifery student?	<ul style="list-style-type: none"> They coped by using accommodations provided for them and available resources, as well as by developing problem solving skills, and coping strategies, many of which were adaptive when working in a non-stressful environment and were identified as useful and/or helpful. They also tapped into their strengths. Chapter 4; Section 6.11-Section 6.11.3; Table 6e) They adopted a maladaptive strategy such as avoidance in situations that particularly involved multi-tasking (Chapter 4; Section 6.11-Section 6.11.3; Table 6e)
Q3i	What strategies can help and support nursing and midwifery students with dyslexia?	<ul style="list-style-type: none"> <u>Strategies that jog the memory</u> (Section 5.2): To do lists; university coloured pens; writing things down and Neuro-Linguistic Programme Anchoring (Section 5.2.1-5.2.4) <u>Strategies that helped with documentation</u> (Section 5.3). Stickers or tick lists; repeat things, check, double check (Section 5.3.1-5.3.3) <u>Other helpful strategies and resources</u> (Section 5.4): Time taken or given; use of coloured overlays; supportive mentors and staff (Tables 5bi-5biii)
Q3ii	What are students' and mentors' perceptions on the poster guidelines (developed following a previous study), designed to help and support nursing and midwifery students with dyslexia in clinical practice?	<ul style="list-style-type: none"> Students were able to identify with many of the problems associated with dyslexia and of the strategies outlined in the poster guidelines (Section 5.5) Poster described as a very useful tool kit (Section 5.5.1) Noted as informative, a teaching and learning aid (Section 5.5.2) Raises awareness of what dyslexia is about and the strategies used (Section 5.5.3) Made suggestions on what to add or subtract to any other tool kit developed in future (Section 5.5.4i), how to and where such future guidelines or tool could be used (Section 5.5.4ii)



7.7 Summary of what is added to the body of knowledge: What is new

Many of the findings of this study are supported by those of other researchers, and which confirm what is already known (Chapter 6). These included the impact of dyslexia on the students' ability to document and/or read, problems related to short-term memory, processing speed, organising, confidence, disclosure, numbers, drug administration, multitasking, having heightened awareness, being over vigilant, creative (Chapter 3) and the development of coping strategies (Chapter 4).

However, some of the findings of this study are new so add to the body of knowledge and the reasons for this are discussed in detail (Chapters 6 and some aspects of Chapter 7). There is a growing body of literature in the nursing field on the topic of study, yet research on the topic in relation to midwifery practice is almost non-existent. Search for papers in other healthcare fields including medicine and social work also proved difficult though the reason for this is not known. Findings from this study should, therefore, make an original contribution to current state of knowledge in the nursing and midwifery fields (particularly midwifery) and perhaps to other healthcare workers field and are summarised below:

- ✓ Provision of labour care is challenging, e.g. confusion with time during night shifts, problems related to vaginal examinations (diagnosing foetal positions), catheterisation, and remembering what to write after provision of precipitate labour care (Sections 6.3.1 and 6.7; Table 6c).
- ✓ When working in a busy environment, the student with dyslexia experienced stress and frustration with cascading effects (Section 3.6; Section, 3.6.2; Section 6.5; Section 6.5.1; Section 6.5.3; Table 6c; Section 7, Figure 7a, p210).
- ✓ Drug administration errors reported (Section 6.8.1; Section 6.8.2; Section 7.3.2).
- ✓ Positive aspects of dyslexia include 'caring and conscientious' 'good problem solving and interpersonal skills (Section 6.10; Table 6d).
- ✓ Colour-coded drugs names, type, dosage and route (Section 3.11.3i; Section 3.14.3i; Section 4.2.3; Section 4.3.1; Section 6.8.3; Table 6e).
- ✓ Use of Neuro-Linguistic Programming Anchoring (NLPA*) to assist recall when carrying out procedures in clinical practice (*although by one student) (Section 6.4.1, Section 6.11.6; Table 6e).
- ✓ Stickers e.g. address labels and other stickers with summaries of information already printed on them (vaginal examinations stickers; summary of delivery already printed with tick boxes; postnatal check stickers were particularly useful) (Section 6.11.4; Table 6e). Drop-down menu was helpful* (Section 6.11.4; Table 6e).
- ✓ Poster (with guidelines for supporting students with dyslexia) was described as a very informative and useful tool for teaching, and a learning guide (Section 5.5.1; 5.5.3; Section 6.11.4).



7.8 Recommendations

The following recommendations were based on the findings (Chapters 3-5) as well as on findings from other researchers on the topic studied and discussed in this thesis and are grouped under three subheadings, namely recommendations for practice, for policymakers and funding bodies and lastly, areas for further research.

7.8.1 Recommendations for practice

- a) Disclosure should be encouraged during application to and on enrolment on to the nursing or midwifery course by fostering an environment of trust and honesty (Section 6.13i), to allow sufficient time to risk assess and provide reasonable adjustment (Figure 7.1).
- b) Following disclosure of a disability, staff should demonstrate genuineness, empathy and acceptance.
- c) Following risk assessments and identification of needs, the provision of any reasonable adjustments, particularly for use in the clinical areas, should take into consideration strategies and/or resources noted as useful and/or helpful (e.g. use of standardised forms and/or stickers with already printed information and tick boxes, birth summaries, drop-down menus and/or already prepared handover sheets; varied coloured pens).
- d) Electronic care plans to include patients' observation charts online to allow individuals with dyslexia to change the colour background prior to reading and charting the findings where possible (Section 6.2). The student will also be able to use spell check.
- e) Support nursing and midwifery students with dyslexia to develop and use simple yet effective adaptive coping strategies. (In other words, a combined approach encompassing the social model of disability which currently means mandatory provision of reasonable adjustment for individuals with disabilities, and the medical model of disability which implies responsibility of the individual to self-help should be adopted—Sections 7.8.2-3).
- f) Adopt the support framework in Section 7.8.3 although every individual with dyslexia is unique and any support provided should be tailored to individual needs. However, such support should never compromise standards of care.
- g) In order to maximise support, it is recommended that all those who support students with dyslexia liaise with the student and with each other as noted in the support framework below (Section 7.8.3; Figure 7, p.216; Figure 7.1, p.218), bearing in mind the uniqueness of individuals.
- h) Adopt and use of the newly developed toolkit as best practice tool (Sections 7.8.3-7.8.4; adapted from poster guidelines following its formal evaluation and other research findings). This is to be placed in the students' portfolios, and it is to be used interactively



between mentor and student. Further adjustments should be made where necessary following formal evaluation of its usefulness.

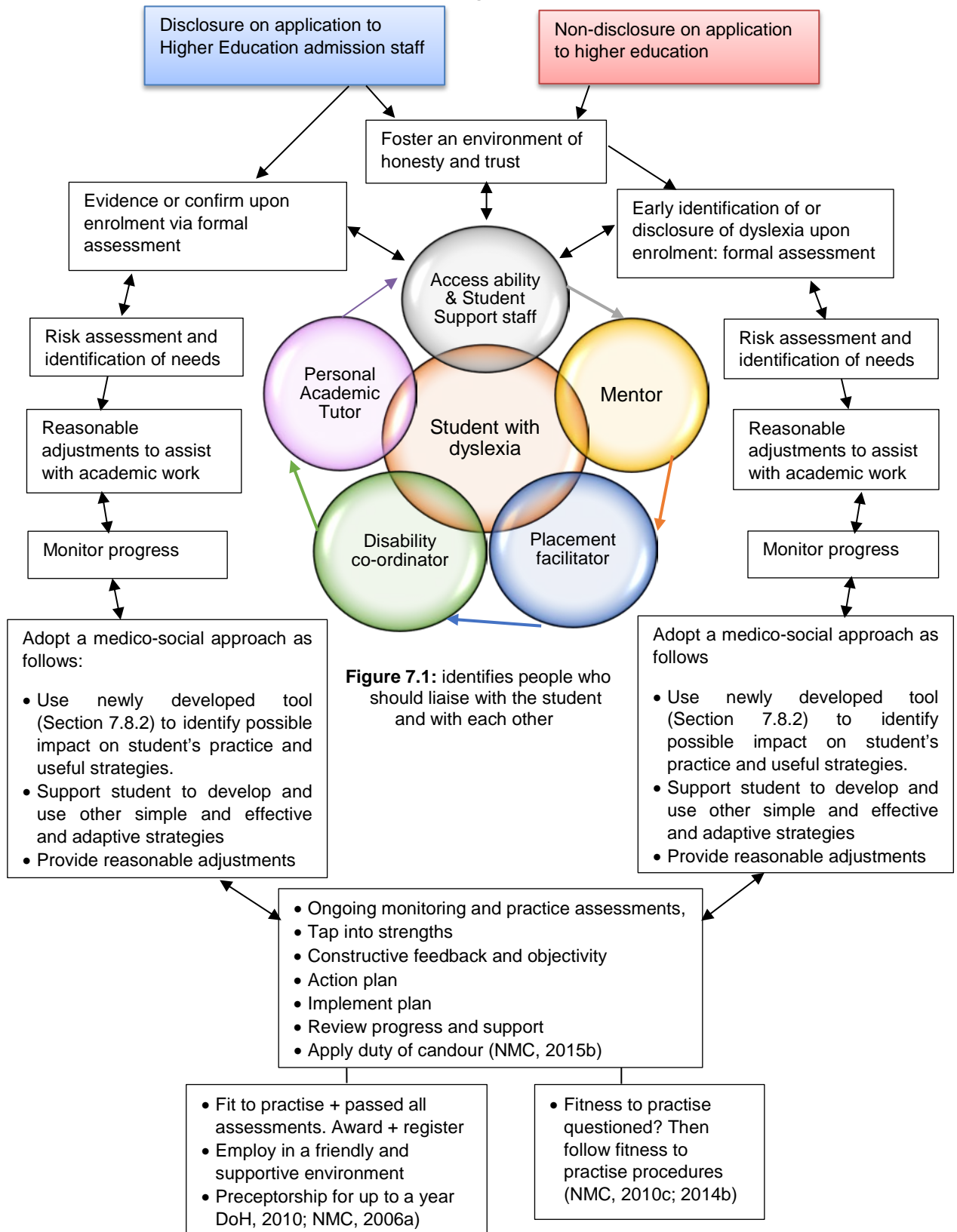
- i) Support individuals with dyslexia to participate in their management.
- j) A non-stressful and less acute clinical working area should be considered upon registration as nurse or midwife where at all possible.
- k) Implementation of a preceptorship programme for up to a year (Section 6.13ii; DoH, 2010; NMC, 2006a) is essential to enhance support for the newly qualified student with dyslexia.
- l) Any definition of dyslexia should encompass issues with writing (6.1).

7.8.2 Recommendations for policymakers and funding bodies

- a) Use dyslexia friendly font such as Arial, Verdana or Dyslexie font (Section 6.2) to write up policies and guidelines.
- b) Adopt the newly developed tool as best practice tool for the present training and education programmes for nursing and midwifery students.
- c) The Nursing and Midwifery Council should support the integration and formal evaluation of the newly developed tool into the students' practice portfolios.
- d) The training and updating of nurses, midwives, and other healthcare practitioners, should include information on the possible impact of dyslexia on individuals' practice, and on known useful coping strategies.
- e) Provide funding for training and education of staff and ongoing professional development on disabilities and issues related to dyslexia.
- f) Support the use of the proposed support framework, which will also require more funding.
- g) Reinforce the implementation of a preceptorship programme for up to a year (Section 6.13ii; DoH, 2010; NMC, 2006a) to enhance support for the newly qualified student with dyslexia.



7.8.3 Support framework for nursing or midwifery students with dyslexia



7.8.4 Aims and characteristics of the tool developed for supporting nursing and midwifery students with dyslexia in clinical practice areas.

Suggestions and recommendations made by both mentors and students were taken into account in the production of another tool for use in clinical practice. They suggested, for example, that one should develop a tool that could be used interactively by the students and their mentors. The development and subsequent use of this tool is, therefore in line with the WHO report on disability (WHO, 2011) which advocates that people with disabilities should be involved in the development of policy. Although some of the students suggested the new tool could be placed in the student's pack, it might be better placed within the student's practice portfolio (which is now managed online), for availability, accessibility and cost effectiveness. It will also allow the student to change the colour background where necessary.

The tool aims to:

- Raise awareness of how dyslexia might impact on the practice of nursing, midwifery and or other healthcare students.
- Raise awareness of the coping strategies that may be useful and/or helpful for nursing, midwifery and or other healthcare students with dyslexia when working in clinical fields.
- Help identify how dyslexia impacts or might impact on the practice of individuals with dyslexia and the possible solutions for same.
- Enhance communication between students with dyslexia, their mentors, personal academic tutor and other members of staff to optimise support.
- Enhance participation of individuals with dyslexia in their management whilst promoting their independence.

Its use could in turn help facilitate disclosure in the practice areas. A column is provided to encourage the student to suggest coping strategies they might develop/use to help them, other than those listed in the middle column (p.220). Permission will be sought from appropriate gatekeepers prior to its use.

An alternative is to produce a small and simple pocket guide, or electronic guide (online) for nursing and midwifery students with dyslexia to help them think of and to develop adaptive coping strategies to combat their difficulties although this idea might not be carried through as the pocket guide may incur costs. There is also no guarantee that the student will access any electronic guidelines. Due to the nature of the other healthcare workers, the identified aims and the use of this new tool are transferable so should be helpful to the professions allied to medicine as well. Section 7.8.5 gives an outline of what information is expected to be placed together with the actual tool (in a table format) for supporting students with dyslexia, in the practice portfolios.



7.8.5 Tool for supporting students with dyslexia in clinical practice

The following research based tool is to be placed in the student's practice portfolio. It is to be used interactively between the nursing or midwifery students and their mentors and personal teachers or other staff in the clinical areas. Other healthcare students and workers may also find it useful.

There should also be liaison between the student and the members of staff identified in Figure 7.1, who should also liaise with each other to optimise support:

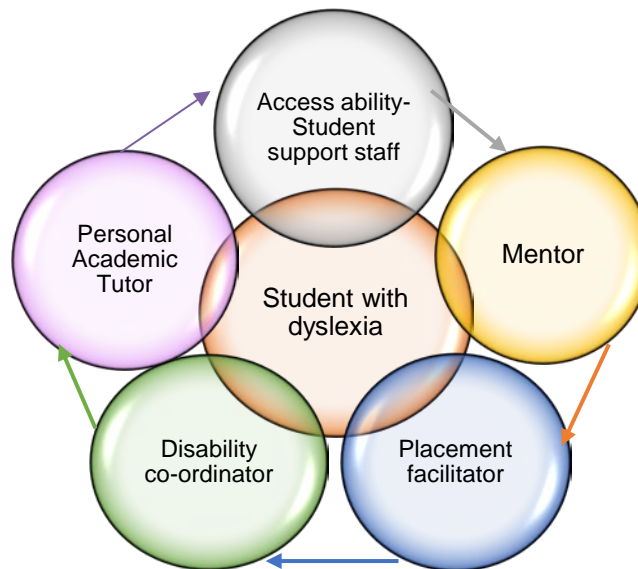


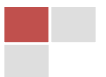
Figure 7.1: The above identifies the people who should liaise with the student and with each other

Aims of tool:

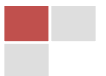
1. To raise awareness of how dyslexia might impact on the practice of nursing, midwifery, and/or other healthcare students.
2. To raise awareness of the coping strategies that may be useful and/or helpful for nursing, midwifery, and/or other healthcare students with dyslexia when working in clinical fields.
3. To help identify how dyslexia impacts or might impact on the practice of individuals with dyslexia and the possible solutions for same.
4. To enhance communication between students with dyslexia, their mentors, personal academic tutor and other members of staff to optimise support.
5. To enhance participation of individuals with dyslexia in their management whilst promoting their independence.



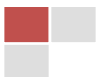
For use by nursing and midwifery students with dyslexia and their mentors or other qualified staff in clinical practice				
Problem	Tick Box A	Possible solutions	Tick Box B	
If dyslexia impacts on your practice in the way listed below, please place a tick in tick box A next to it.		<p>If you are using or intend to use the coping strategy listed below on this placement, please place a tick in tick box B next to it.</p> <p>Placement:</p>		Please write down other solutions you develop and/or may use but which is not listed + brief feedback on progress
1. Documentation; Record-keeping (for example, observation charts, assessment forms, care plans, patients notes; antenatal booking forms, birth summaries)		<ul style="list-style-type: none"> • Ask questions to allow points to be clarified and understood before documenting • Document immediately or as soon as possible after activity or event • Double-check with mentor or other staff if in doubt • Mentor to give student time to write • Use drop-down menu on computer if available • Use already printed information for history taking or booking history (with tick boxes) or electronic records (where available) • Use stickers e.g. address labels, and/or standardised forms such as birth summaries or postnatal care summaries with tick boxes where available • Keep audio notes or diary 		
2. Difficulty with spelling and/or grammar		<ul style="list-style-type: none"> • Use spell checkers; allow use of laptop • Check with mentor or peers as appropriate • Use electronic records where available 		



3. Forgetfulness		<ul style="list-style-type: none"> • Keep a notebook or diary (or audio notes or diary) • Write things down as soon as possible (use symbols in your rough notes where appropriate during an emergency to help you remember) • Use varied coloured pens and/or highlighters • Use already prepared handover sheets (where available) • Prepare and use prompt cards • Repeat things where necessary • Develop and use to do lists • Use mnemonics 		
4. Difficulty with reading e.g. charts		<ul style="list-style-type: none"> • Allow enough time to read • Student may use an appropriate colour overlay to enhance reading. • If using a computer or lap top, may change background colour to enhance reading • Staff handwriting should be legible • Use dyslexia friendly fonts e.g. Verdana, for typed documents (such as drug charts, policies and guidelines, electronic care plans where available) 		
5. Difficulty with numbers		<ul style="list-style-type: none"> • Use appropriate learning aids such as calculator • Double-check work with mentor/staff 		



6. Difficulty with drug administration		<ul style="list-style-type: none"> • Double-check, double-check with mentors or with qualified staff; check British National Formulary • Use calculator 		
7. Difficulty performing tasks or procedures e.g. might be slow at performing a task		<ul style="list-style-type: none"> • Student to observe the mentor performing before being asked to do the same • Show a finished sample or template where possible • Allow enough time to complete tasks or procedures • Reflect on the completed tasks or procedures 		
8. Problem with organising skills and/or with time management		<ul style="list-style-type: none"> • Student to write up a 'to-do lists' during and/or following handovers, taking into account priorities • Plan ahead what needs doing and how and when to carry them out (follow the plan) • Use varied coloured pens • Use tick boxes • Mentor to give some guidance or structure 		
9. Finds multitasking difficult		<ul style="list-style-type: none"> • Avoid overloading with information. Have a pen and paper ready to write on when answering the phone. • Ask person on phone to repeat statement where necessary 		
10. Lack of confidence, low self-esteem		<ul style="list-style-type: none"> • Promote student's independence by indirect supervision where appropriate • Find out the student's strengths • Give constructive feedback. 		



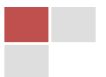
11. Confusion with left- right sides of body		<ul style="list-style-type: none"> • Allow time to assess and identify right and left side of body and to perform tasks • If left handed, adopt the most comfortable position to carry out tasks and/or procedures • Double-check with patient, mentor or other qualified staff 		
12. If dyslexia impacts on you in a way that is not listed above, please add in this box				
13. If dyslexia impacts on you in a way that is not listed above, please add in this box				

(Adapted from previous work by Crouch, 2009)

Useful phone numbers: 01604 735500, ask for student support. Add here other telephone numbers that may be useful to you:

..... (Placement facilitator)

..... (Personal academic tutor)



7.8.6 Areas for further research

- a) A formal evaluation of the newly developed tool for supporting students with dyslexia should be carried out and further adjustments made as necessary, adding on any new findings from the healthcare arena that might be useful.
- b) Formal evaluation of the support framework for the student with dyslexia must be carried out.
- c) Future comparative and longitudinal studies on nursing and midwifery students with and without dyslexia in relation to practise should be carried out to help confirm or refute some of the findings.
- d) Specifically, research on the perceptions of student midwives with and student midwives without dyslexia on their provision of antenatal, labour and postnatal care is needed.

7.9 Reflection on the whole process

In order to enhance research rigour, it has been suggested that some reflection is necessary (Hall and Callery, 2001) although this is not advocated by Glaser for grounded theory. The Nursing and Midwifery Code (NMC 2015) also requires nurses and midwives to reflect on their continued professional development and practice and to discuss their relevance to aspects of the Code. This account therefore, is a discussion on how one developed as a PhD student, the knowledge and skills acquired and the relevance of one's development to the NMC Code.

Having registered as a postgraduate research student in July 2013 (after enrolling in March 2012), transfer to become a PhD degree student was achieved in 2014. Prior to that, one had conducted a few research projects as part of a Master of Arts in Education and in preparation for undertaking this PhD. That, coupled with chairing and co-editing a nursing text book, writing up and publishing four chapters meant one had acquired many skills related to project management, leadership, team building, writing and editing. One was therefore confident upon enrolling as a postgraduate student, although soon realised there was a lot more to learn so felt challenged.

According to Clough and Nutbrown (2012, p.36), 'trying to produce a definitive definition of methodology as used in the social sciences and to serve the purposes of all researchers, is rather like trying to catch water in a net'. This statement was true of one's attempts to search for information and to write on the differences between research methodology and research methods at the outset upon request. Until that time, however, the terms methodology and methods were used interchangeably so the process felt overwhelming. Although this led to feelings of doubt, uncertainty, and low self-esteem, on hindsight, one is



very grateful for going through that experience as it raised awareness of the depth required for a PhD and led one to carry on with the help of supervisors and senior management.

In the process, one's knowledge about research methodology in terms of the different paradigms and the philosophical assumptions underpinning them, for both quantitative and qualitative paradigms, with focus on the qualitative grew. With ongoing feedback and guidance from the supervisors, one's ability to write in more depth about the rationale for choosing research within any particular paradigm and about the various methods to choose from and the necessary ethical procedures, including the rationale for same in more depth also improved. The process also led one to become more conscious about the need for rigour and how to reduce threats to the trustworthiness of research, hence steps were taken to enhance the quality of this research

Apart from that, one has gained a better understanding of dyslexia and its possible impact on the nursing and midwifery students' practice, from the students' perspective, and of the coping strategies they develop and/or use on placement. Moreover, there is increased awareness of the students' (with dyslexia) and mentors' perceptions on the usefulness of the poster guidelines developed following previous funded research to help mentors supporting dyslexic students in clinical practice. Overall, information from the data gathered helped one to practise more effectively (NMC, 2015) with particular reference to understanding and dealing with individuals with dyslexia.

All tape-recorded data were transcribed and reported on clearly and accurately, whilst ensuring anonymity and confidentiality in line with NMC (2015) and research ethical guidelines (UoN, 2012; BERA, 2011;2016); and are stored in accordance with the Data Protection Act (2003), University research ethics (2012), NMC Code (2015; p.9, Section 10) and BERA guidelines (2011; 2016). The conduction of the whole project also required one to work cooperatively with gate keepers, the participants and with colleagues, including the supervisors who evaluated one's work in an ongoing manner. It also involved the development of recruitment posters, participants' information sheets and consent forms in line with ethical principles (UoN, 2012; BERA, 2011; 2016) all of which required some creativity and writing skills.

In order to prepare and present this research at various conferences as well as make this thesis acceptable, it has been necessary to communicate clearly both orally and in writing. The whole process also required one to review available literature on the subject and to use best available evidence in support of one's own findings, all of which are in line with the NMC Code (2015). Skills acquired from conducting this research, include negotiating, project management, leadership, creativity, time management, problem-solving and



enhanced communication, including writing and presentation skills, all of which are transferable.

The findings of the research which include suggestions made by both students and mentors in the study also helped to put together some recommendations. This led one to develop a new tool (adapted from the previous poster guidelines - Crouch 2009) to be used in an interactive format between students with dyslexia and their mentors in the very near future. Although students with dyslexia seem to receive excellent support, as reflected throughout the findings of this study, one's intention is to help enhance the provision of appropriate support for dyslexic nursing and midwifery students. This will in turn help to improve their practice and performance during their education and training to become registered, the skills of which could be transferred to their future practice as employees. This is in line with the NMC Code for one to 'be supportive of colleagues who are encountering health or performance problems' (NMC, 2015; p.8, Section 8.7).

Some of the findings have already been shared at local and national conferences and one hopes to disseminate these at other conferences in the future. There are, however, some aspects of the project that could have been managed differently. There were times, for instance, when one did not fully understand things said or guidance given so should have had the courage to ask the supervisors to re explain what they had said, to avoid one getting stressed. The lack of boldness to ask for explanation on a couple of occasions meant a misunderstanding which could have been avoided on one's part.

Although steps were taken to enhance the trustworthiness of the research, the use of direct observation by the researcher would also have helped to reduce threats to its credibility. This was, however, probably compensated for by the use of comments (reports from mentors who had worked alongside the students and had observed them at work) in the students' practice portfolios. Further research is however needed as outlined in Section 7.8.6.

7.10 Summary

It is evident from this chapter that, the aims of the study were achieved and the questions which were set out at the outset were addressed (Table 7, p.212). Data collected were rich, and steps were taken to enhance research rigor and the trustworthiness of the findings. However, the whole process was very time consuming and required great skill. Many themes were generated and discussed. This led to the conclusions and the many recommendations given. The findings also led to the development of the new toolkit which is to be used interactively between students and their mentors. How the process led to ones' personal and professional development are also discussed.



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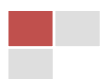
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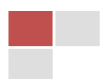
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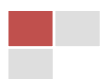
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APPENDICES

Appendix 1A: Origins / definitions of dyslexia

There does not seem to be any consensus about the origins of the term dyslexia or about its meaning. Dymock (2011) for instance, referred to Shaywitz (1996, p.12) as stating that, 'the first description of the learning disorder that would come to be known as developmental dyslexia' was in relation to a 14 years old boy who was bright, intelligent and quick at games, and who was in no way inferior to others yet had great difficulty reading. According to the New Zealand Ministry of Education (2007) however, the term dyslexia was first used in 1887 to describe a young man who demonstrated typical intellectual and physical abilities yet had severe difficulties in reading and writing. It is worth noting that Shaywitz (1996) referred to a bright 14year old boy with reading difficulties whereas the New Zealand Ministry of Education (2007) referred to a bright young man with reading and writing difficulties; so it is unclear whether the authors were referring to the same person although each of them claimed this was the first description of the term dyslexia. Nonetheless, the description of the term dyslexia by both Dymock (2011) and the New Zealand Ministry of Education suggest that the reading and/or writing difficulty expressed by the lad was unexpected, implying that dyslexia may have a developmental origin.

Apart from Hudson, High and Otaiba (2007, p.1- Section 1.3), Dymock (2011, Slide 2) suggest that the term dyslexia is a Greek word made of two syllables; the first syllable which is 'dys' means 'difficult' and the second syllable which is 'lexia' means words, reading or language. Lotus, on the other hand, states that the term dyslexia is derived from the Greek words 'dus' which means a difficulty, and 'lexis' which means single word or speech' (Lotus, 2009, p3). Hence, Lotus explains that the term dyslexia simply means a difficulty with language, a notion that is supportive of that of Hudson, High and Otaiba (2007). Although the definition of dyslexia given by Hudson, High and Otaiba (2007) and that of Lotus (2009) attempt to explain what the term dyslexia means, they do not explain the actual difficulties experienced as such or how and why the 'difficulties' referred to arise in a person with dyslexia.

The points made above also suggest that the prefix 'dys' (Dymock, 2011) and the term 'dus' (Lotus, 2009) are synonyms. This could explain why the terms dys and dus have been used interchangeably by different authors in attempt to define dyslexia. However, according to the dictionary the term 'dys', is a prefix derived from the Greek word dus and it is used to form compound words and means abnormal, diseased, impaired, difficult, unfavourable or bad, depending on the context (TheFreeDictionary, 2013). According to the Random House dictionary (2013) the term 'lexis' also means the vocabulary of a language and it was



derived from the Greek word 'léxis' which means speech, diction word, or text, which seems to complement the meaning of the term lexis given by Loftus (2009).

Various disabilities including unseen disabilities such as mental health difficulties and learning difficulties, including dyslexia, were also included in the legal definition of disability (Equality Act, 2010; Chapter 1). Some authors such as Lyon *et al*, therefore defined dyslexia as a 'specific learning disability' associated with difficulties such as accurate and/or fluent word recognition, poor spelling and decoding abilities (2003, p.2). Like the above-named authors, Lyon *et al*. (2003), emphasized difficulties associated with literacy apart from describing dyslexia as a disability. Interestingly, research findings by Ridley (2011, p.39) suggest that some people with dyslexia do not consider themselves as disabled and that they are 'differently abled' although the sample studied was only 7.

Tunmer and Greaney (2010, p.229) also argued and suggested that there are four main components of dyslexia;

- i) 'Persistent literacy, learning difficulties;
- ii) Demonstrated in an otherwise typically developed children;
- iii) Irrespective of exposure to evidence-based literacy instruction and intervention;
- iv) Due to impairment in the phonological domain of language'.

Tunmer and Greaney (2010) introduced the cause of the condition in their definition of dyslexia. Descriptions i and ii of the term dyslexia by Tunmer and Greaney (2010) seem to support the definition of dyslexia referred to by Shaywitz (1996) and some aspects of the definition of dyslexia given by the Ministry of Education (2007) yet they all seem to place emphasis on difficulties related to literacy only.

The British Dyslexia Association's (2012) description of the term dyslexia as a 'specific learning difficulty' or a hidden disability associated with difficulties related to the way in which information is processed, stored and retrieved, literacy, memory, organisation, and time perception is more comprehensive (Chapter 1). This is because it implies that there is more to dyslexia than difficulties related to literacy and seems to be in line with that of Morgan and Klein (2000), who also referred to the term dyslexia as a condition characterized by various difficulties affecting literacy, spelling, organisation, memory and sequencing.

Aspects of the BDA's definition (2012) seem to be echoed by the International Dyslexia Association (cited by Davis Dyslexia Association International -DDAI, 2013) which describes dyslexia as a specific learning disability that is neurological in origin. They go on to express that dyslexia is:



'characterized by difficulties' related to 'accurate and/or fluent word recognition, poor spelling and decoding abilities. These difficulties result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction' (DDAI, 2013, p.1).

Secondary difficulties that may arise include reading comprehension, lack of reading experience that can impede growth of vocabulary and background knowledge. Aspects of the IDA's definition except for decoding abilities and the impediment of growth of vocabulary seem to be congruent with those of Shaywitz (1996 cited by Dymock (2011), and of New Zealand Ministry of Education (2007). The IDA's definition also seems to reflect possible causative factors. The IDA (DDAI, 2013) definition could however be more comprehensive to include some other difficulties associated with dyslexia. It could be noted from the above discussion that there are variations of the definitions of dyslexia although it is not clear how these definitions were arrived at and only the BDA's and some aspects of the IDA's definition seem to be based on research findings.

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Appendix 1B-The Nurse: summary of required competency standards

Competences required for entry to the nursing register are grouped under four major headings (domains), namely 'Professional values', 'communication and interpersonal skills', 'nursing practice and decision making', 'leadership management and team' (NMC, 2010; 2015c,p.11). For the purpose of this paper, a summary of the generic standards for competence required of nurses is given below (NMC, 2010; 2015c)

o *Domain 1: Professional values (NMC, 2010; 2015c):*

All nurses are required to make the provision of care and safe guarding of the public their priority in an autonomous, compassionate person-centred and evidence based manner. They responsible as well as accountable for their actions and omissions, and are expected to demonstrate professionalism and integrity, as well as apply 'recognised legal and ethical frameworks whilst working in 'partnership with other social and health care workers, agencies and service users' in all care settings (NMC, 2015c, p.13).

o *Domain 2: Communication and interpersonal skills (NMC, 2010; 2015c)*

Nurses are also required to 'use excellent communication and interpersonal skills' (NMC, 2015, p.15). This requires use of a wide range of effective strategies, interventions and technologies in a safe, compassionate and respectful manner. Other skills required include self-awareness (domain 2:3), listening, demonstration of empathy and ability to respond warmly and positively to people of all age groups who might be anxious or in distress.

They need to work with service users (with disabilities) and others to obtain the required information 'to allow for reasonable adjustments that promote optimum health and to enable access to services '(NMC, 2010, p.13).

o *Domain 3: Nursing practice and decision making (NMC, 2010; 2015c)*

Skillful, safe, compassionate and autonomous practice is required of all nurses. This requires the nurse to maintain the dignity of service users and to promote their health well-being. The full range of essential physical and mental health needs of all people who come into the care of a nurse must also be assessed and a safe and effective immediate care given where necessary before accessing and referring to specialist services.

'The complex and coexisting needs of people' must be met in any setting 'including hospital, community and home' (NMC, 2015c, p.17). Practice must be evidence based and in line with local and national guidelines. Any decisions must be informed by a whole range of possible interventions, including use of current technology.



How health, illness and health outcomes and public health priorities could be affected by behaviour, socio-cultural, and economic factors amongst others in the care environment must also be understood by nurses.

o *Domain 4: Leadership, management and team working (NMC, 2010)*

In this domain, nurses are required to be 'professionally accountable' and to ensure that the maintenance and improvement of nursing practice and standards of healthcare are underpinned by 'clinical governance' processes (NMC, 2015c p.20), the latter of which is a framework which involve activities that assist in the sustenance and improvement of high standards of care (DoH, 1997; DoH, Social services and Public Safety, 2001).

Tasks analysis for the student nurse

The work of a nurse on a typical day in involves certain tasks which aim to achieve the NMC (2010) competency standards and such tasks have been summarised in figure 1b on next page 269.



Task Analysis for the nursing student is outlined in figure 1b below:

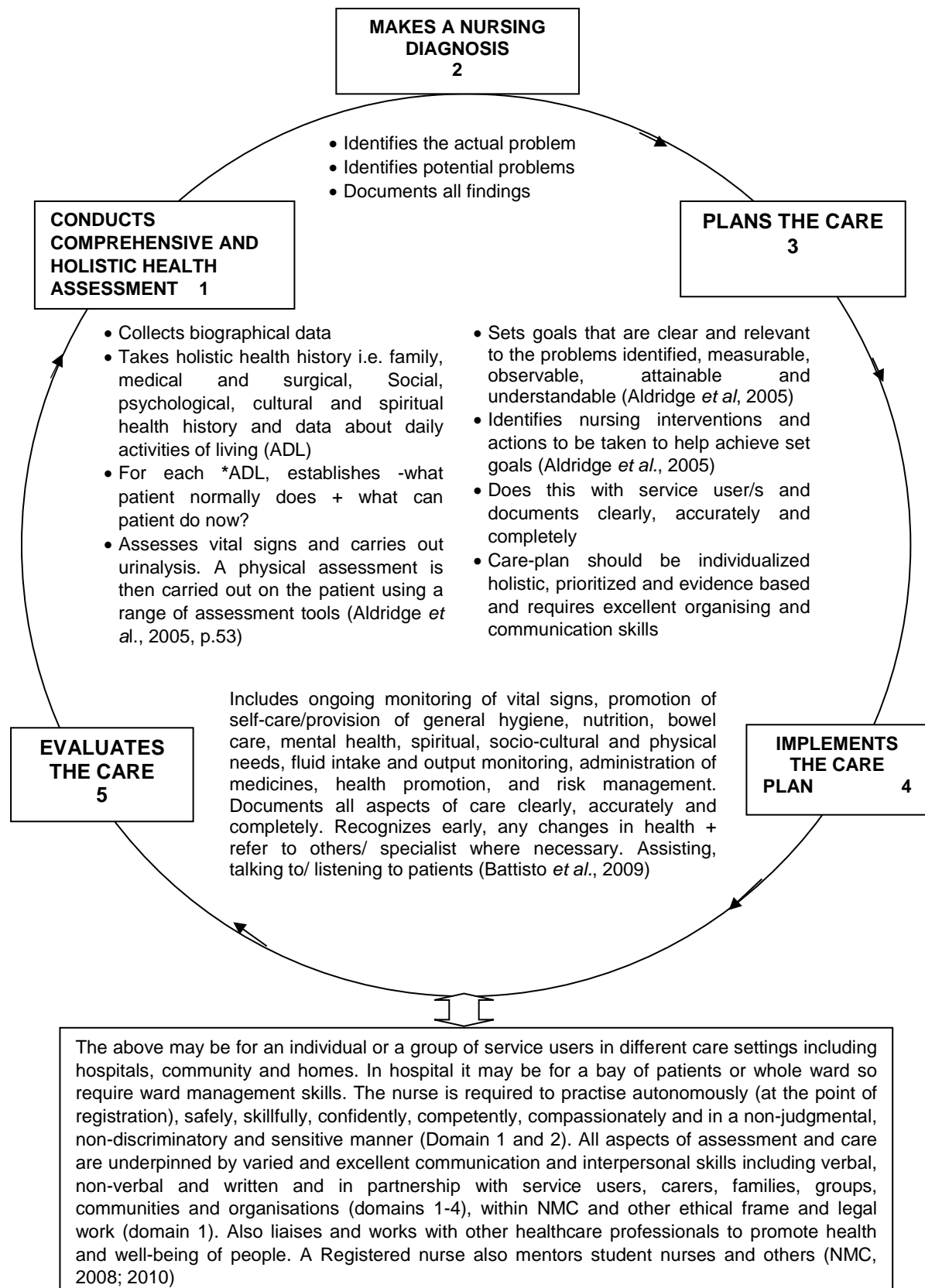
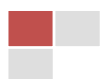


Figure 1b A diagrammatic representation of task analysis for a nursing student.

Diagram adapted from Crouch and Meurier, 2005, p.53, figure 2.1- 'Stages of the nursing process'- reproduced with permission from John Wiley and Sons Limited (books) via PLSclear'



Appendix 1C- The Midwife: competences to be achieved and the activities of a midwife or a student midwife

The competencies are reflected under four main domains namely, 'effective midwifery practice'; 'professional and ethical practice'; 'developing the individual midwife and others'; and 'achieving quality care through evaluation and research' (NMC 2009, p.21; 2015, p.23), a summary of which is given below.

- Domain: Effective midwifery practice (2015d, p.23-30)

This domain relates to the need for a midwife to be able to diagnose pregnancies, holistically assess, monitor, plan the care, provide and evaluate the effective care for women and their new born infants, and their families, giving them necessary support throughout pre-conception, antenatal, labour and postnatal period. It also takes into account the need for midwives to recognise any deviation from the norm and to use appropriate emergency procedures to help meet the health needs of women and their babies. The need for selection, acquirement and safe administration of a range of permitted drugs in line with legislation are also addressed under this domain. Effective practice is underpinned by effective communication and interpersonal skills including non-verbal, and verbal (including written and computer formats) and with emphasis on effective interaction with women and their families, as well as on completion, storage and retention of record of practice. The practice must also be based on best available evidence.

- Domain: Professional and ethical practice (p.31-34)

This domain requires all midwives to practise within NMC (2008; 2015d) code of 'ethics within the limitations of individuals own competence, knowledge and sphere of professional practice' (p.31) and in line with midwifery related and relevant legislation. Emphasis is therefore placed on the need for respect, promotion and support for individual rights and interest of mothers and their families, maintenance of confidentiality, and health promotion to ensure safety and well-being of others and their babies and those of others. Midwives are also required to work in collaboration with other health care professionals, as well as manage and prioritise any competing demands.

- Domain: Developing the individual midwife and others (p.34)

In this domain, midwives are required 'to review, develop and enhance development of their knowledge, skills and fitness to practise' on an ongoing basis.

- Domain: Achieving quality care through evaluation and research (p.35)

In this section, the application of relevant knowledge to the midwife's own practice, ongoing reflection on practice and the use of 'best available evidence', use of the 'most appropriate



technology systems' to 'manage and develop care and contribution to the auditing of practice to optimise care' have been emphasised.

According to the Nursing and midwifery council (NMC, 2015d) article 42 of directives 2005/36/EU the activities that are to be carried out by registered midwives include the following: -

- a) Diagnosis of pregnancy and ante-natal Care
- b) Care of women in labour
- c) Postnatal care of women and their newborn infants
- d) Activities applicable throughout antenatal, labour and postnatal period
- e) Maintenance of all necessary records

There are also essential skills clusters that must be achieved by the student prior to completing the course (NMC, 2009; 2015d) and which highlights the demanding nature of the education and training of midwives.

Tasks analysis

Based on the above information and on past experience, the task analysis for a student midwife includes the task shown in the following tables (1a, 1b and 1c); all of which require excellent interpersonal and communication skills (verbal and written), team working, decision making, organising, and application of theory to practice, application of ethical and legal frameworks, and policies, as reflected in the NMC (2009; 2015d) standards, competencies and relevant essential skills set to be achieved to ensure safe and effective practice without direct supervision.

Table 1a: Task analysis for a midwife: Description of basic tasks for antenatal care

Assessment and care of pregnant women (booking + follow up Antenatal care)	<ul style="list-style-type: none"> • Interviewing to take holistic health history (medical, psycho-social, cultural, spiritual, obstetric previous pregnancies – at booking) • History taking re current pregnancy • Calculates expected date of birth (at booking) • Collects and test urine • Measures blood pressure • Weigh pregnant mother • Takes blood (vena-puncture) • General examination of woman • Abdominal palpation and fundal measurement • Fetal heart auscultation • Give information and advice + health promotion • Maintain confidentiality • Refer to and work in partnership with other health care professionals including doctors where appropriate e.g. for scan or medical attention • Documents all in information • Preparation for labour and parenthood classes
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Table 1b: Task analysis for a midwife: for labour /immediate post-delivery care

Assessment, care plan and care of women during labour (baseline assessment followed by ongoing monitoring and care)	<ul style="list-style-type: none"> • Take history of onset and progress of labour • Respect wishes and maintain dignity of mother • Monitor vital signs • Conduct abdominal palpation and fundal measurement. • Auscultate fetal heart • Cardiotocograph assessment • Conduct vaginal examinations to monitor progress of labour • Administer pain relief (e.g. Intra Muscular or epidural) • + or - IV fluid management • Keep Records of all assessment, plan of care, care giving and ongoing evaluation of care • Recognise any deviations from the norm +manage emergencies and refer to specialist as appropriate • May or may not perform episiotomy/suturing of perineum • Conduct delivery of baby/babies (+immediate care to ensure breathing + observe Apgar scores) + or – risk management • Manage 3rd stage of labour (e.g. baby to the breast and or give Syntometrine injection) + deliver placenta • Examine placenta for completeness and normality + weight • Monitor uterus to ensure it is well contracted and it's maintained • Monitor vaginal blood loss plus measure and record • Ensure mother's dignity is maintained and that she is given a wash and her bed clothes changed • Head to toe examination of baby (but with minimal handling of baby) • Keep baby warm
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Table 1c: Task analysis for a midwife: Description of basic tasks –postnatal care

Postnatal assessment and care of Mother and baby (for a minimum of 10days and maximum of 28days)	<ul style="list-style-type: none"> • Initial and follow up head to toe examination of mothers to include colour, oedema, breasts, well contracted uterus +height, vaginal loss for colour, odour, amount, any clots. B/P, pulse and temperature • Encourage and support mother to breast feed successfully • Advice on best position for breast feeding • Information giving + promote health • Promote self-care • Initial examination of newborn +follow up daily care and monitoring • Keep records of all assessments and care given • Support for mother, baby and family • Recognise any deviations from the norm and refer to specialist • Work in partnership with mother, family and other healthcare professional + transfer care of mother and baby to health visitor
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Appendix 2A: Participant information sheet (Version 4)

Title: Exploration of the perceived impact of dyslexia on nursing/midwifery students and strategies used to overcome any difficulties associated with dyslexia in clinical practice

Invitation: You are invited to participate in the above-named research. An understanding of what the research is about and what will be involved is necessary prior to making a decision to participate. Please read the following and feel free to ask me any questions

About the researcher: I am undertaking this research as part of a PhD course at the University of Northampton.

The purpose of the research: The aim of the research is to explore how dyslexia impacts on you and strategies used by you or by others (staff, including practice mentors) to help you overcome any difficulties associated with dyslexia in clinical practice. In addition to those, an evaluation of your perceptions/experiences and those of mentors in clinical practice of the tool kit used for nursing and midwifery students with dyslexia will also be carried out.

Who will take part in this research? A) I am looking for students who: -
1) Are on a nursing or on a midwifery course at UoN, have been identified with dyslexia, and have been on the course for at least 6 months.

2) Have formally disclosed of your disability.

B) I am also looking for practice mentors who have mentored student nurses/midwives with dyslexia within last 3years and those who are currently mentoring student nurses /midwives with dyslexia in clinical practice to participate in an evaluative survey.

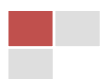
What the study involves: The research will involve a one to one face to face semi-structured audio recorded interview that will last about 45-60 minutes in an available classroom or office free from distractions at the University of Northampton or in a venue of your choice. Open ended questions will be used to allow you to talk freely during the interview. Further questions will be used to check the researchers' understanding and/or help you to expand on points you have made. Please feel free to talk freely during the interviewing process.

The researcher also needs your permission to access your file, and your practice portfolio, to read, identify and analyse any information related to any strategies used to help you overcome any problems associated with dyslexia. You do not have to do anything about your file. However, the researcher will make arrangement with you to check through your practice portfolio at a later date at your own convenience. Access to information in your file will be for the purpose of the research only.

What will happen to the information?

The information from the interviews will be transcribed and stored on a university computer. Any hard copies will be kept in a locked filing cupboard. Any information collected is for the purpose of this research only and will not be given to any other party except with my supervisory team. After analysis of the information, a thesis will be written to present and discuss the findings. It will not be possible to identify you or anyone else who participated in the study in any future publication of aspects of this research. The information collected will be kept for 2 years before being destroyed after the completion of the thesis.

Will confidentiality be maintained? Confidentiality and anonymity is assured. No real names of participants will be used during the study. Any detail you give which leads to identification of individual and/or the clinical area concerned by mistake will be erased,



omitted or changed as appropriate. Confidentiality and anonymity will be maintained by the use of codes (a combination of letters and a number). You will be known by the code assigned from then on by the researcher and supervisory team.

Are there any risks? There are no physical risks to you as a person. Dyslexia is however a sensitive topic so in case you become distressed during the interview, you will also be encouraged to arrange to see and talk to your personal academic teacher and to a member of staff in the student support service at the university.

Not sure about participating? Or do I have to take part? You are not obliged to participate and even if you agree to do so and give a written consent, you can withdraw from the study at any time without the need to give an explanation. Choosing to withdraw at any time from the research will have no effect on your course. All you would need to do is to let the researcher know when you are ready to stop.

What do I have to do if I wish to participate? If you decide to participate in this research, please contact me using the contact details below so that we can agree on a date for the interview. Once you decide to participate in this research, you will be asked to complete a copy of the attached written consent form when you come in for the interview. Please feel free to ask any questions you have prior to completing it and taking part.

How soon should I decide to participate?

To avoid any hasty decision, please take the information sheet home to re-read and think about it over at least twenty-four hours.

Who has checked this research? This research has been reviewed and approved by The University of Northampton Research Ethics committee/ Research degrees committee

Please Contact the Researcher:

Email: anna.crouch@northampton.ac.uk

Anna Crouch (Senior Lecturer)
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Boughton Green Road.
NN2 7AL

Tel No: 01604 735500 extension 2524 or direct dial 01604 892524

MANY THANKS FOR YOUR INTEREST

Supervisors contact information

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Appendix 2B: Written Consent form

Exploration of the perceived impact of dyslexia on nursing/midwifery students and strategies used to overcome any difficulties associated with dyslexia in clinical practice

Name of researcher: Anna Crouch

Participant ID Number for this study.....

Please tick or initial box

I confirm that I have read and understand the participant information sheet dated for the above study. I have had the opportunity to consider and ask any questions and have received satisfactory answer/s to my questions. ☐

2. I understand that the interview will be audio-taped and transcribed. ☐

3. I understand that my participation is voluntary and that I can withdraw from the study at any time without having to give any reasons and without my student status being affected. ☐

4. I understand that some direct quotations from the information I give will be used to support discussion on themes generated in an anonymous manner. This means my name will not be used but a combination of letters and a number code will be used to identify my information. ☐

1. I understand that my information will be kept confidential and I will be known by the code assigned from then on by the researcher and supervisory team. ☐

6. I understand that apart from this interview, the researcher will also access documents such as my practice portfolio, and my personal file for the purpose of this study only ☐

a) I give my permission for access to my portfolio ☐

b) I give my permission for access to my file ☐

7. I agree to take part in this study ☐

8. I would like / would not like to read the transcript ☐

Please state contact number or email to allow further arrangement for access to practise portfolio and for forwarding a copy of transcript to you where appropriate

Contact No /email address:

.....
Name of participant (Print) Date Signature

.....
Name of person taking consent Date Signature

.....
Name of researcher Date Signature

Many thanks for completing the form and for giving your consent for the above study. Any personal information will be destroyed after completion of the thesis. Apart from adding to existing knowledge it is hoped that the findings of this study will help adjust the poster guidelines for mentors supporting nursing and midwifery students with dyslexia in practice.



Appendix 2C Table 2g Overview of the dates on which I went into classrooms to introduce research to students

Date	Cohort	Purpose
23 rd July 2013 12.50	<ul style="list-style-type: none"> October 2012 groups 1 and 2 Pre-Registration student nurses (Only very few students were in class) 	<ul style="list-style-type: none"> Went into class to inform students of research using participants' information sheets and consent forms – questions invited and I asked those who met the criteria (fig 2c) and would like to participate to contact me at a later date
24 th July 2013 10am	<ul style="list-style-type: none"> October 2012 cohort groups 3 and 4 (Pre-registration student nurses) 	<ul style="list-style-type: none"> As above
25 th July 2013 10am	<ul style="list-style-type: none"> October 2012 cohort groups 5 and 6 (Pre-registration student nurses) 	<ul style="list-style-type: none"> As above
4 th October 2013	<ul style="list-style-type: none"> Feb 2012 Pre-registration student nurses 	<ul style="list-style-type: none"> As above
17 th October 2013	<ul style="list-style-type: none"> October 2011 cohort (Pre-registration student midwives) 	<ul style="list-style-type: none"> As above
4 th November 2013	<ul style="list-style-type: none"> March 2013 cohort group 1 BSc Pre-registration student nurses 	<ul style="list-style-type: none"> As above
5 th November 2013	<ul style="list-style-type: none"> March 2013 cohort group 2 BSc Pre-registration student nurses 	<ul style="list-style-type: none"> As above
13 th November 2013	<ul style="list-style-type: none"> October 2012 Cohort – Student midwives 	<ul style="list-style-type: none"> As above
14 th November 2013	<ul style="list-style-type: none"> October 2011 Pre-registration student nurses (Adult field) 	<ul style="list-style-type: none"> As above
15 th November 2013	<ul style="list-style-type: none"> October 2011 Pre-registration student nurses (Learning Disability field) 	<ul style="list-style-type: none"> As above
18 th November 2013	<ul style="list-style-type: none"> Post-registration (Short programme) student midwives 	<ul style="list-style-type: none"> As above
13 th Dec 2013	<ul style="list-style-type: none"> 13/14 Post graduate student nurses and midwives on health and social research methods for evidence based practitioners course at the university 	<ul style="list-style-type: none"> Presented PhD research to mentors (qualified nurses and midwives on mentors' training/update) as part of the session in a class room on university campus. Made aware of need to evaluate poster guidelines. Invited to participate if they so wish/met criteria
20 th January 2014	<ul style="list-style-type: none"> February 2012 cohort Pre-registration student nurses (Mental health field) 	<ul style="list-style-type: none"> Went into class to inform students of research using participants' information sheets and consent forms – questions invited and I asked those who met the criteria (fig 2c) and would like to participate to contact me at a later date
3 rd Mar' 2014	<ul style="list-style-type: none"> Pre-registration student midwives 	<ul style="list-style-type: none"> As above
25 th March 2014 10am	<ul style="list-style-type: none"> October 2013 cohort. Pre-registration, BSc student nurses (½ of group) 	<ul style="list-style-type: none"> As above
25 th March 2014 12.15	<ul style="list-style-type: none"> October 2013 cohort. Pre-registration BSc student nurses (½ of group) 	<ul style="list-style-type: none"> As above
3 rd Nov 2014	<ul style="list-style-type: none"> ? March 14 cohort Grp 1-Pre-Reg nursing 	<ul style="list-style-type: none"> As above
19 th March 2014 10am	<ul style="list-style-type: none"> Sought and obtained permission + accessed participants files 	<ul style="list-style-type: none"> Managed to access 9 files (N1-5, M2-5) plus copies of portfolios x 4 (N2-3, M3-4)
26 th March 2014	<ul style="list-style-type: none"> Obtained permission and accessed participants files 	<ul style="list-style-type: none"> Accessed files M1, M4 and N4
26 th November 2014	<ul style="list-style-type: none"> Obtained permission and accessed rest of participants file 	<ul style="list-style-type: none"> Accessed file for N7.
11 th Dec 2014	<ul style="list-style-type: none"> 14/15 Post graduate student nurses and midwives on health and social research methods for evidence based practitioners course at the university 	<ul style="list-style-type: none"> Presented PhD research to mentors (qualified nurses and midwives on mentors' training/update) as part of the session in a class room on university campus. Made aware of need to evaluate poster guidelines. Invited to participate if they so wish/met criteria



Appendix 2D: Semi-structured interview questions (for student nurses); structure and examples of prompts and probes.

As suggested by Yin (2008), it was intended that one would conduct a guided conversation rather than structured queries. This required one to follow ones' *own line of enquiry as reflected* in the case study proposal (Appendix 0) whilst asking the conversational open ended questions in a friendly, non-threatening and unbiased way (Yin, 2008).

An introduction in line with Robson (2011) suggestion for structuring interviews which includes 'stating the purpose of the interview, assuring confidentiality and asking permission for the interview to be taped' (p.277) was given. The first couple of questions are closed ended questions which aim to ensure that the participant is happy to go ahead with the interview recorded as well as to ensure that the potential participant meets the inclusion criteria (p.8) for taking part in the research, whilst building rapport with that participant. This was followed by the funneling approach to asking questions which involves use of broad open-ended questions and generating more specific ones (Cohen, Manion and Morrison, 2011; Burnard, 2005). The use of such questions (more specific) as appropriate helped to clarify points made and to generate more information (Robson, 2011; Burnard, 2005; Mason, 2006; Griffiths, 2009; Cohen, Manion and Morrison, 2011). Use of funneling also helped the conversation (interview) to become directed and focused (Burnard, 2005) in line with Yin's (2008) suggested *guided* and focused conversation (*interview*-p107) although it requires great skill and the specific questions need to be carefully worded. The set opened ended questions were also based on the students' tasks analyses (Appendices 1B and 1C) to allow exploration of the perceived impact of dyslexia on all aspects of care.

Active listening skills including minimal prompts e.g. ok, uh ha, hmm, good, right, were also used throughout to encourage the participant to talk. Other prompts and probes such as the repeat of a word or phrase said by the participant and which I would like to him/her to expand on was used to encourage participants to talk freely (Robson, 2011; Stringer, 2004; Egan, 2013). Paraphrasing and summarising were also used to check that one had heard/understood what was said (McCabe and Timmins, 2006; Cohen, Manion and Morrison, 2011; Egan 2013) and to help move interview /conversation forward. The suggested skills were applied to all questions and answers.

Researcher:

Introduction: Many thanks for agreeing to participate in this research. As you are aware, the purpose of this interview is... Confidentiality will be maintained... (explain briefly how) and as mentioned in the information sheet, it will be taped so that it can be transcribed. Is that still ok?

Answer DSN1:



Q2 How long have you been on the nursing course?

Answer DSN1:

Researcher: (repeat what has been said)

Q3 Ok, so when was it identified that you have dyslexia?

Answer DSN1:

Researcher: (Paraphrasing) What I'm hearing is that you were formerly diagnosed.....
(When you were still in school / recently)?

Q4 Ok. So what made you to choose to come into nursing?

Answer DSN1:

Q5 As you are aware, the nurse's role includes assessments, care-planning, implementing and evaluating the care of service users. **Can** you tell me what it means to be a student nurse with dyslexia in the holistic assessment of and care planning for patients? (To help answer research question 1)

Answer DSN1:

Researcher: (paraphrasing)

- So, you seem to be saying that....

Q6 It involves a lot of active listening whilst reading and asking the patient questions, and then writing the answers down. Can you tell me of your experience in dealing with that?

Answer DSN1: ...

Researcher; (Paraphrasing +probing)

- So what you are saying is that you find.... aspects ok

- However, you seem to have some difficulties?

Probe) Can you describe what it is that makes the process difficult?

Answer DSN1: ...

Probe) What aspects in particular would you say are affected by dyslexia

Answer DSN1: ...

Researcher: (Summarising)

- What I'm hearing is that....

- You also said.... Is that right?

Q7 What is it like for you at a patient's bed-side, or at a clinic in the implementation and evaluation of care? (To help answer research question 1)

Answer: DSN1

Researcher: Probe) How does dyslexia affect this?

(Summarising) From what I've heard, it seems as if you are saying that....

Q8. Can you describe what actually happens when you try to perform a nursing task? (Encourage participant to give any example of a nursing task in relation to giving holistic care – to help answer research question 1)



Answer: DSN1

Researcher: (brief summary)

- From what you have said to date, it seems that you...
You do however seem to experience some difficulties in relation to....
- Is that correct?

Probe) What aspects of these difficulties you have described would you relate to dyslexia as such?

Q9. I wonder how you cope with the difficulties you have identified? I am interested in any coping strategies that you use (This question is to help answer research questions 2 and 3).

Answer DSN1....

Researcher: (Paraphrasing)

- So it sounds as if the main strategies you use to help you overcome difficulties are. .
- You also said.....
- Have I got this right?

Q10. I am also interested in what it is like for you caring for a number of patients in a bay? Can you describe a typical day for you when giving care in your practice learning opportunity area? (To help answer research question 1) (NMC, 2010, domains 1-4).

Answer DSN1

Researcher: Probe) So how does dyslexia impact on this aspect of your practice?

Answer DSN1

(Summarising)

- So, you seem to be saying that....
- You also described to me some of the difficulties you have in relation to reading and writing and other difficulties in relation to....

Probe) You mentioned about organising your work. Can you elaborate a bit more on that?

Answer DSN1

- Brief summary...

Probe) So right in the middle of giving care, the telephone goes. What happens?

Answer DSN1

Probe) You made a point about hand over time... Can you share what happens?

Answer DSN1

Q11. Ok, Can you tell me about any strategies that you use to try and overcome these difficulties? (To help answer questions 2 and 3)

Answer: DSN1



Researcher (Summarising) From what you have said to date, it seems that you...
You do however seem to experience some difficulties in relation to....

- You also told me of the strategies you have developed for yourself to help you cope with the problems you identified? namely ... (e.g. writing things down on a piece of paper to help you to remember and to accurately record information in the patient's notes').
- You also mentioned that your mentor uses strategies such as.... etc. And that ...
- Is that right?

Q12. (Have a copy of the current tool kit in use by mentors to help SOH nursing and midwifery students with dyslexia in Clinical practice- poster guidelines to help answer the next question

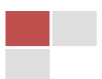
3). If participant has already mentioned this in answering any of the questions above, then leave next question out. If not then proceed as follows.

Many thanks. I am also wondering what your perceptions /experiences are in relation to the use of this tool kit (poster guidelines)?

-Summarise all points given to date, checking understanding with the participant.

Q13. Are there any other issues?

Many thanks for your help. (Check with student regarding need to bring in portfolio and arrange another date as appropriate)



Appendix 2E: Semi-structured questions used + examples of prompts and probes to be used with student midwives

Researcher:

Introduction. Many thanks for agreeing to participate in this research. As you are aware, the purpose of this interview is... Confidentiality will be maintained... (Explain briefly how) and as mentioned in the information sheet, it will be taped so that it can be transcribed. Is that still ok?

Answer DSM1:

Q2 So how long have you been on the midwifery course?

Answer DSM1:

Researcher: (repeat what has been said)

Q3 Ok, when was it identified that you have dyslexia?

Answer DSM1:

Researcher: (Paraphrasing) What I'm hearing is that you were formerly diagnosed.... (When you were still in school / recently)?

Q4 Ok. So what made you to choose to come into midwifery?

Answer DSM1:

Q5; Can you tell me about a typical day in the antenatal clinic for you in the monitoring and caring for pregnant women? (To help answer research question 1)

Answer DSM1

Researcher; Summarises

- So to what you have said to date is that you tend to get on well with etc... etc.
- However, you seem to find it difficult when etc.
- Have I got this right?
- Probe) What aspects in particular would say are related to dyslexia?

Q6. It also involves a lot of active listening whilst reading and asking the patient questions, and then writing the answers down. Can you tell me of your experience dealing with that? (To help answer question 1)

Answer DSN1...

Researcher; (Paraphrasing +probing)

- So what you are saying is that you find the aspects of the form where you have to tick the boxes ok
- However, you seem to have some difficulties with...?
- Probe) Can you describe what it is that makes the process difficult?

Answer DSN1: ...

- Probe) I wonder how you cope with the difficulties you have identified? (to help answer research question 2 and 3)



Answer DSM1

Researcher; (summarise point to date to check for understanding and correctness).

Q7 Ok. What about a day in the labour room (or looking after a woman in labour at home)? What has it been like for you? (To help answer research question 1)

Answer DSM1

Q8. Right; I am also wondering how it is for you in the actual conduct of a normal delivery (to help answer research question 1)

Answer DSM1

Researcher:

- Ok, just checking what you said to date, that is, you tend to get on well with etc... etc.
- However, there seems to be some difficulties /issues with etc. some of which are similar to those you mentioned already but you also identified dissimilar issues which are...
- Have I got this right?

Probe) How does dyslexia play a part in your labour care experience?

- Give a brief summary

Q9. So how do you cope with the issues you have identified? (I mean the ones we have not discussed already- to help answer research questions 2 and 3).

Answer DSM1

Q10. Part of a midwife's role and hence training aspect for you is the supervision, examination and care of mothers and their newborn infants in the post-natal period. Can you tell me of your experiences of giving postnatal care to women? (To help answer research question 1)

Answer DSM1

Researcher:

Probe) What about your experiences in supervising, examining and caring for newborn babies? (To help answer question 1) (Ask this only if not addressed already)

Answer DSM1

Paraphrasing-

- So you said you've had some experience immediate post-delivery as well as on the postnatal ward where you looked after a few mothers and their babies on different shifts?

Answer DSM1

Probe) So how does dyslexia impact on these aspects of your practice?

Answer DSM1

Probe) You also mentioned about organising your work. Can you elaborate a bit more on that?



Answer DSM1

Probe) Right. So right in the middle of you looking after mothers and their new born babies in the ward, the phone goes. What happens then?

Answer DSM1

Summarise briefly...

Probe) You also made a point about hand over time... Can you share what happens?

Answer DSM1

Summarise briefly...

Q11. Ok, Can you tell me about any strategies that you use to try and overcome these difficulties? (To help answer questions 2 and 3)

Answer DSM1

Researcher: (Summarising points to date)

- From what you have said to date, it seems that you...
You do however seem to experience some difficulties in relation to....
- You also told me of the strategies you have developed for yourself to help you cope with the problems you identified? namely ... (e.g. writing things down on a piece of paper to help you to remember and to accurately record information in the mother's notes').
- You also mentioned that your mentor uses strategies such as.... etc. And that ...
- Is that right?

Q12. (Have a copy of the current tool kit in use by mentors to help SOH nursing and midwifery students with dyslexia in Clinical practice- poster guidelines to help answer the next question 3). If participant has already mentioned this in answering any of the questions above, then leave next question out. If not then proceed as follows.

Many thanks. I am also wondering what your perceptions /experiences are in relation to the use of this tool kit (poster guidelines)?

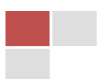
Summarise all points given to date, checking understanding with the participant.

Q13. Are there any others issues?

Answer DSM1:

Ok; Many thanks for your help.

(Check with student regarding need to bring in portfolio and arrange another date as appropriate)



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Appendix 2F: Questionnaire used for mentors (qualified staff)

This questionnaire should take 10 to 15minutes (the most) to complete:

Q1. Have you seen these poster guidelines for supporting students with dyslexia before?

Q2 Are you currently using or have you implemented aspects of the attached guidelines for supporting students with dyslexia in clinical practice in the last 3 years?

If you answered yes to question 2 please proceed to next question.

Q3. Please comment in as much detail as possible, of the following aspects of the poster guidelines e.g.

a) Please state which of the suggested strategies in the poster guidelines you used to support a student nurse or student midwife with dyslexia, stating reasons.

b) What are your perceptions on the usefulness of the poster guidelines (please give as much detail as possible)

c) Any other comments?

Many thanks for taking part.

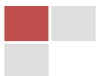


Appendix 2G: Ghants' chart

Time table for the research

Research Management	Research /read on topic	Background Literature review	Prep proposal	Submit proposal To super-visor	Seek Approval REC etc.	Reg APG STD	Collect data	Analyse data	Transfer of Reg	Write up Thesis	Submit
March 2012	○	○									
April											
May											
June			○								
July			↓								
August			↓								
Sept			↓								
Oct			↓	○							
Nov			↓	↓							
Dec			↓	↓							
Jan 2013			↓	↓							
Feb					○	○					
March					↓	↓					
April-June		↓		↓	↓	↓	○			○	
July-Aug							↓	○		○	
Sept2013-Mar2014							↓	↓	○		
April-Aug							↓	↓	○		
Sept2014-Mar 2015	↓									○	
April-Aug										○	↓
Sept2015-Mar2016										↓	↓
Jan 2017											↓
Mar 2018											

Start ○ → finish (intended) Late start/finish = ⇨ but not officially late to submit since I was a part-time student



Appendix 2H

Poster guidelines for mentors supporting student nurses and midwives with dyslexia in clinical practice.

supporting dyslexic students in clinical practice poster guidelines i.pdf - Adobe Reader

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Supporting Dyslexic Students in Clinical Practice

THE UNIVERSITY OF NORTHAMPTON
School of Health

This poster was produced as a result of research into the needs and experiences of dyslexic nursing and midwifery students in clinical practice and how they could be best supported (Crouch, 2008).

The participants were asked to discuss their needs and how best they could be supported. Findings following a literature review of available research papers in the field and the themes generated from this study form the basis of the following guidelines:

- Establish a good rapport with the student as soon as possible
- Spend some time with the student to discuss what their needs might be and the level they are expected to work at for the stage of their education and training. Please note there is currently no requirement for the student to disclose a disability
- Where the student discloses their disability, confidentiality must be maintained, except where the student gives written consent for information to be shared with others. Liaison could be maintained with other staff who are involved in supporting the student (see diagram)
- Demonstrate acceptance and empathy
- Find out from the student how best they could be supported

Support network for the dyslexic student

Guidelines for Mentor supporting a dyslexic student

Problem	Possible solutions
Forgetfulness	<ul style="list-style-type: none"> • Repeat things where necessary • Encourage the student to develop strategies such as keeping a diary to combat this problem
Difficulty with spelling, grammar and writing	<ul style="list-style-type: none"> • Encourage the student to use audio-visual aids to help with spell checking • Check over the student's work and feedback where necessary
Documentation of forms and care plans	<ul style="list-style-type: none"> • Ask questions to ensure information relayed on written communication has been understood • Give the student time to complete documents in a quiet environment
Difficulty in listening and writing at the same time	<ul style="list-style-type: none"> • Encourage the student to develop strategies for dealing with this problem, for example, to ask people to speak slowly and clearly when answering a telephone call, to ask the person on the phone to repeat the information to be written down and to get some clarification from the other person where necessary
Difficulty with reading	<ul style="list-style-type: none"> • Staff handwriting should be legible • Ensure information is on an appropriate colour background. Student may use an appropriate colour overlay to enhance reading • Allow the student enough time to read
Carrying out procedures	<ul style="list-style-type: none"> • The student needs to observe the mentor performing a task before being asked to do the same. Give the student time to carry out the procedure after taking time to explain • Show a finished sample/template where possible
Difficulty with numeracy	<ul style="list-style-type: none"> • Encourage the student to use appropriate learning aids such as a calculator and check through the work, giving constructive feedback • Supervise drug administration on patients
Lack of confidence/low self esteem	<ul style="list-style-type: none"> • Promote the student's independence by indirect supervision where appropriate • Give constructive feedback
Has difficulty in dealing with more than one thing at a time	<ul style="list-style-type: none"> • Avoid overloading with information • Encourage the student to write up a 'to do list' taking into account priorities (British Association for Dyslexia, 2006)

Funded by the Higher Education For Health Sciences and Practice/Sponsored by The University Of Northampton 2006-2008

References:
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Anna Crouch®

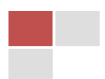
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Appendix 2i Data analysis/constant comparative method- Table 2i

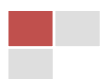
Open coding: Conceptual categories	Initial concepts + selective coding Student midwives (generated from face to face interviews)	Evidence from other sources: (Student M files and/or portfolios)	Evidence from other sources: (Student N files and/or portfolios)	Initial concepts/themes from student nurses (generated from face to face interviews)
Documenting is challenging McCandless F. Sanderson-Mann J. Wharrad (2006) Write info in another's /wrong info	Documenting : • Challenging- M1.8; M1.9; M2.13; M2.15; M2.28; M2.45; M2.58; M2.59; M3.16; M4.21; M4.22; M5.14; M5.16; M5.18; M5.77; M5.88; M5.95; M5.110; M5.116;	In group presentation, student unable to write on board • M1.F Prone to stress when writing a lot of information • M2.F Unable to write on board. • M1.F	Has difficulty writing • N1.F; N4.F; N5.F; N6.F; N7.F Stress may have adverse effect on literacy skills, memory and on concentration • N6.F Finds it difficult getting thoughts on paper and expressing thoughts orally.... Has difficulty writing... gets writer's cramp and has slow writing speed • N7.F	Documenting: • Challenging- N1.18; N1.24; N1.33; N1.91; N2.52; N2.58; N3.18; N3.20; N3.28; N4.20; N4.35; N4.127; N5.9; N5.11; N5.12; N5.13; N5.14; N5.15; N5.16; N5.18; N5.19; N5.50; N6.10; N6.37; N6.45; N7.11; N7.21; N7.22; N7.23; N7.24; N7.28; N7.29; • <u>Assessment forms</u> N6.83 • Difficulty with processing N5.16; N7.16 • <u>Overwhelming/ a lot-</u> N1.16; N4.33; N7.11; • When it is a long piece of text N1.74; • Time consuming to find words I want to use N7.21; N7.23; • Panic that I am going to be told off/based on previous experiences N2.52; N2.53; • Challenging to listen and write at the same time N2.13; N2.16; N3.107; N3.20; N3.40; N3.43; N4.30; N4.38; N5.49; N5.52; N5.53; N6.21; • It depends on the pace N4.38; • <u>Lack of familiarity</u> N6.37; • Challenging in a noisy background N7.11;
Amount/ Document type	• Psychological hurdle/ embarrassing - M1.10; M1.11; M1.12;			
Time consuming	• Paper work initially felt <u>overwhelming</u> M1.21; (A/N) <u>Huge amount</u> M1.24; M1.26; M1.27; (L/W) M5.115; (P/N)			
Busy	• I find it difficult to just be filling in form after form after form M3.16; • Takes 1/2hr to complete <u>discharge forms</u> M1.47; • When under pressure M2.41; M2.45; It's busy M5.112; M5.116; • Tricky /struggle when hectic/busy M5.115; M5.95; • Write more than I need to M1.28; • <u>Lack of familiarity</u> /Difficult to understand (blood forms)/ where to put information M5.14; M5.16; M5.18; • Difficult to work out days, times and different stages of labour M5.77; • My dyslexia has nothing to do with whether or not I can write a paragraph or whether or not I can take notes M3.11;	Prone to stress when writing a lot of information • M2.F ..has gained trust respect from the team. Overall an exceptional student midwife • M3.P3 Her record keeping is excellent /good • M3.P4 / M4.P5 Her record keeping is exceptionally good and her communication with		



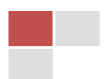
	<ul style="list-style-type: none"> I don't see that my dyslexia is an issue M3.19; My record keeping is spot on M3.46; I write wrong information due to multitasking M5.110; 	<p>staff are of high standard</p> <ul style="list-style-type: none"> M3.P5 		
Documenting is challenging	<p>Trouble with spelling;</p> <ul style="list-style-type: none"> M1.8; M1.21; M1.77; M2.13; M2.41; M2.62; M2.62; M2.65; M2.101; M3.12; M3.40; M4.24; M4.28; M4.29; M4.30; M4.48; M5.18; M5.22; Unfamiliar words M1.8; M1.21; M3.12; M5.22; If at speed/ under pressure M1.12; M2.41; M2.54; Spelling error of drugs M1.12 but believes it won't change anything ..things that are back to front M4.23 <p>Problem with Grammar;</p> <ul style="list-style-type: none"> M2.63; M3.40; M4.26; M5.29; M5.30; M5.31; 	<p>M1.F; M3.F; M2.F: but no spelling error in hand written essay</p> <p>M1.F; M2.F; But no errors noted in handwritten essay</p> <p>Trouble with grammar and punctuation</p> <ul style="list-style-type: none"> M1.F; M2.F; M3.F; M4.F; M5.F 	<p>Difficulty with spelling</p> <ul style="list-style-type: none"> N3.F; N5.F; N6.F; N4.F; N7.F <p>No spelling or grammatical errors in hand written essay noted for N7</p> <p>Trouble with grammar and punctuation</p> <ul style="list-style-type: none"> N1.F; N3.F; N4.F; N5.F; N7.F 	<p>Trouble with spelling:</p> <ul style="list-style-type: none"> N1.55; N2.13; N2.58; N3.26; N3.29; N3.108; N4.29; N5.24; N5.49; N5.51 <p>Problem with grammar/ sentence structure</p> <ul style="list-style-type: none"> N1.24; N5.17; N5.20; N5.21; N5.22; N5.49; I write gibberish N5.51;
Documenting is challenging Safety Issues Documenting is challenging	<p>I mix up words/write backwards;</p> <ul style="list-style-type: none"> M1.12; M2.28; M2.41; M4.23 Miss out words M2.29; M2.44; M2.55; Lack of logical sequence M5.82 In a high risk situation... going to revert back to being 4 years old almost with my vocabulary M2.54 <p>Documents into mother's instead of baby's note</p> <ul style="list-style-type: none"> M5.95 <p>I will be writing what they are asking me instead of what I am meant to be writing</p> <ul style="list-style-type: none"> M5.110 			<p>I mix up words/miss out words /write backwards;</p> <ul style="list-style-type: none"> ..I do it backwards N1.24; N4.49; N4.50; N4.51; N4.54 I might say it wrong but mean the right one N4.53; N4.106 I write the wrong word N6.93; N6.94; N6.96 N2.63 (with numbers) N4.106
Documenting is challenging	<p>Scruffy handwriting:</p> <ul style="list-style-type: none"> M1.8; M1.9; M1.12; M1.77; M2.41; M4.49; M4.50 	<p>Untidy writing</p> <ul style="list-style-type: none"> M1.F 		<p>Scruffy handwriting (if I write quickly)</p> <ul style="list-style-type: none"> N7.14
Assessment experience Slow				<p>Initial assessment</p> <ul style="list-style-type: none"> Takes me a bit longer N1.8; N1.9; N5.12;



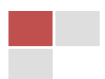
Practice is strength				N6.10; N7.14
Reading difficulty lack of understanding				<ul style="list-style-type: none"> Easier than expected N2.13; N2.14; I'm quite creative N5.
Amount				<ul style="list-style-type: none"> Has to be structured N3.17; N4.23 I like doing/ I do initial assessment quite well because they are structured N4.23; N4.33;
Noisy environment				<ul style="list-style-type: none"> Work in pairs / potentially violent patient N4.24
Multi-task is challenging				<ul style="list-style-type: none"> It's understanding the questions/some wording difficult N4.43; N4.44 Dyslexia makes it a bit more challenging N6.10 It's an awful lot of work for me N7.11 Difficult to write in a noisy background N7.11; N7.12 Difficult to listen and write at same time N2.16; N3.18; N3.38; N3.39; N3.43; N5.52; N5.53; N6.21; N6.22; N6.72; N6.125; N7.79; N7.80;
Coping – notes; short hand; in Pencil first;				<ul style="list-style-type: none"> I tend to write notes N5.27 I use short hand N7.11 Type (list/note form) directly onto assessment forms but change later N5.27; N5.28; N5.30 Tend to write in pencil N4.24; N4.25
Antenatal care experience	<ul style="list-style-type: none"> <u>Prepare booking packs before the women arrive</u> M1.9 (strategy) <u>Untidy hand writing so I write slowly</u> M1.9 <u>My overall care not affected, only my notes</u> M2.13 ... as you are doing it I'm saying it. I'm almost reaffirming what I am going to write. M3.14 			
Enjoyed				



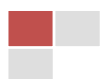
Lack of familiarity	<ul style="list-style-type: none"> I really enjoy it... M4.10 I memorise things M4.10 I am much more of a hands on person than academic M4.21 It's ok M5.14 Different computer system is quite tricky M5.14 			
Care planning experience				Care planning <ul style="list-style-type: none"> Working in partnership with patient N1.15; N3.25 Quite easy N4.47 Drop down menu made care planning easier to manage N2.19; N2.20 Enjoyed care planning N3.25 Absolutely fine N3.25 My care planning is of good standard N5.30 I write in rough first and check how others have done theirs N3.25; N5.30; N7.29; N7.32 Lack of familiarity/experience in community N4.47 Difficult in community N4.47 Struggle with initial bit N5.30 Different ward systems N6.52 Care planning is time consuming for me N6.52; N7.21
Multi-task is challenging Writing+ listening; Writing +phone Delivering + watching clock	Multi-task is challenging M4.33; M4.34; M5.110; M5.111 I write wrong information down; M5.110 M5.103; M5.104; (phone) M5.77:		Has difficulty working in groups... Finds it difficult to concentrate if there is more than one conversation being held within the group. • N7.F	Multi-task is challenging; N2.16; N2.81; N3.18; N3.20; N3.34; N3.39; N3.40; N3.43; N3.38; N3.107; N5.53; N3.88 ; N6.70 (phone) N4.93; N5.49; N5.52; N6.21;; N6.72; N6.125; N7.79; N7.80;N7.122; N7.123 N3.111 (helping others other than allocated patients)
	Avoidance <ul style="list-style-type: none"> M1.11; M1.21; M1.24; M2.41; M3.45; M3.60 With drug admin M5.117; M5.119 	In group presentations student would not be able to write on board • M1.F		Avoidance <ul style="list-style-type: none"> N6.68; N6.69
	Difficulty with	Difficulty reading	Difficulty reading	Difficulty with



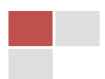
<p>**</p> <p>I use overlay</p> <p>Type + size of font/ Recommendation</p>	<p>reading:</p> <ul style="list-style-type: none"> • M3.29 It's wordy • M3.30; M3.33 <p>Diagrams are difficult to read</p> <ul style="list-style-type: none"> • M3.31 M3.32 <p>I actually like more sort of beige backgrounds, sort of a beige creamy background</p> <ul style="list-style-type: none"> • M3.34; M3.35 <p>I have an overlay</p> <ul style="list-style-type: none"> • M4.79 (blue) <p>Type and size of font make it difficult or easy to read</p> <ul style="list-style-type: none"> • M3.37; M3.38 <p>Abbreviations are difficult to understand</p> <ul style="list-style-type: none"> • M5.19 	<ul style="list-style-type: none"> • M2.F; M4.F; M5.F <p>Stress ay have an adverse effect on reading</p> <ul style="list-style-type: none"> • M5.F <p>Have to go over work several times in order to understand</p> <ul style="list-style-type: none"> • M2.F <p>Has slow reading speed</p> <ul style="list-style-type: none"> • M1.F; M2.F; M4.F; M5.F 	<ul style="list-style-type: none"> • N1.F; N3.F; N4.F; N5.F; N6.F <p>Difficulty absorbing information</p> <ul style="list-style-type: none"> • N3.F <p>Slow reading</p> <p>N1.F; N6.F; N7.F (prefers audio books)</p>	<p>reading:</p> <ul style="list-style-type: none"> • I use blue overlays ...to keep black squares in place. found that really good. N1.21; N1.45; N1.89; N2.69; N2.70; N2.71; N5.35 • N1.39; N1.41; N1.42; N1.44 optimal for best function N1.44 they are really good • Use green overlays N1.42 • Happy with white paper but prefer yellow (is much better) N7.106; N7.107 • Use a lot of technology for coping with workloads and heavy reading N2.47 Its like a bluey overlay ...I have a full one N2.69-71 • For medication it is word recognition N2.72; N3.91; N5.55; N5.56 • The layout of the page N2.73 • Reading numbers backwards N4.54; N4.106; N4.107; • Difficulty reading doctors hand written prescriptions N5.55 • Lack of familiarity N3.91; N5.35
<p>Slow /time needed:</p> <p>***</p> <p>Nicholson and Fawcett, (2007)</p> <p>Nicholson et al., (2010)</p> <p>Sela and Karni (2012)</p>	<p>Slow processing</p> <p>With writing</p> <ul style="list-style-type: none"> • M1.8; M1.9; M2.28; M2.65; M3.46; M3.48; M5.74 <p>With reading</p> <ul style="list-style-type: none"> • M1.8; M3.30; M3.42 <p>At performing tasks / time needed</p> <ul style="list-style-type: none"> • M3.49 <p>Just getting that (VEs) into perspective took a little bit of time</p> <ul style="list-style-type: none"> • M5.69 <p>It took me a while to understand blood forms</p> <ul style="list-style-type: none"> • M5.18 	<p>Processing difficulties</p> <ul style="list-style-type: none"> • M2.F; M4.F <p>Slow writing speed</p> <ul style="list-style-type: none"> • M1.F; M2.F <p>Slow with reading</p> <ul style="list-style-type: none"> • M1.F; M2.F; M4.F; M5.F <p>Has to go over work several times to understand</p> <ul style="list-style-type: none"> • M2.F 	<p>Processing difficulties</p> <ul style="list-style-type: none"> • N1.F; N3.F; N4.F; N5.F; N6.F; N7.F <p>Slow with writing</p> <ul style="list-style-type: none"> • N1.F; N6.F <p>Slow reading</p> <ul style="list-style-type: none"> • N1.F; N6.F; N7.F (prefers audio books) 	<p>Slow processing</p> <ul style="list-style-type: none"> • N1.8; N1.23; N5.12; N6.96; N7.16; N7.38; (helpful or LD pts) • With giving care and/or writing N1.29; N1.30; N1.31; N1.48; N4.127; N5.9; N5.12; N6.10; N6.15; N6.16; N6.30; N6.47; N6.52; N6.21; N7.14; N7.15 N6.90 (drug admin); N6.96; • Time is a big one for me N1.55; • Time given/give time N2.18; N3.106; N3.107 • Slow at everything N3.60; N3.66; N3.67; N3.91; N4.125; N4.126; N6.30; • Staff handwriting



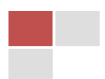
				<p>should be legible! N3.108</p> <ul style="list-style-type: none"> • Learning new technique takes me a bit longer than others N7.53
<p>Drug Calculation / Safety Issues</p> <p>Wright (2013)</p> <p>Other drug admin related issues</p>	<p>Problem with numeracy/ Use calculator</p> <ul style="list-style-type: none"> • '.... I don't use a calculator most of the time because I can do it in my head' M2.106 <p>Least confident/least favourite</p> <ul style="list-style-type: none"> • M5.117; M5.125 • Avoid it at all cost M5.117; M5.119 • Prepared colour coded chart to help identify type of drugs dosage etc. M5.121; M5.122; 	<p>Has difficulty with numbers</p> <ul style="list-style-type: none"> • M5.F <p>Has no problem with numeracy but can use calculators in practice</p> <ul style="list-style-type: none"> • M2.F <p>Review medicine management</p> <ul style="list-style-type: none"> • M3.P5 	<p>Has difficulty with numbers</p> <ul style="list-style-type: none"> • N1.F; N6.F <p>Needs to improve knowledge on medicines /medication</p> <ul style="list-style-type: none"> • N3.P3, N3P5 	<p>Problem with numeracy/ Uses calculator</p> <ul style="list-style-type: none"> • N1.44; N1.71; N1.72; N1.79; N1.88; N1.89; N2.64; N2.97; N3.92; N3.95; N4.94; N4.95; N4.102; N4.103; N6.89; N6.90 • Number switching - 'I will know that I need to write forty one but for some reason I'll write fourteen' N2.63; Say if it was 21 milligrams I might say 12 milligrams N4.106 • 'One zero zero is longer but one hundred is a shorter number to remember' N2.64 • Good with drug calculations N3.92? • That is my area of weakness N3.95? • A bit anxious about it N3.95 <p>No problem with my drug calculation / maths</p> <ul style="list-style-type: none"> • N3.92; N5.54; N5.55 <p>Difficulty understanding the charts</p> <ul style="list-style-type: none"> • N3.91 <p>I write in milligrams when it really is in millilitres</p> <ul style="list-style-type: none"> • N6.93; N6.94; N6.96 <p>I struggle with / I hate pronouncing drug names</p> <ul style="list-style-type: none"> • N5.55; N5.56; N5.57; N5.58 <p>Memorising name of each drug etc. – Challenging/ overwhelming at first.</p> <ul style="list-style-type: none"> • N6.84; N6.88 <p>I really like the actual admin of drugs/ dot in the pot</p> <ul style="list-style-type: none"> • N6.86
<p>.....</p>	<p>Forgetful:</p> <ul style="list-style-type: none"> • Fearful of forgetting M3.52 • My dyslexia affects my memory quite a lot / I forget some information M5.72; 	<p>Poor Short term memory</p> <ul style="list-style-type: none"> • M1.F; M2.F; M4.F; M5.F 	<p>Poor Short term memory</p> <ul style="list-style-type: none"> • N1.F; N3.F; N4.F; N5.F; N6.F; N7.F <p>Stress may have adverse effect on</p>	<p>Forgetful: Assessing</p> <ul style="list-style-type: none"> • N1.17 ; N2.17; N2.65; N2.81;; N3.20; N3.31; N3.49; N3.82; N3.106; N4.140; N6.10; N6.21;;



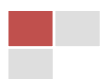
<p>Coping strategies</p> <p>Spelling/documents</p> <p>Lack of familiarity</p>	<p>M5.73; M5.74 / M5.82</p> <ul style="list-style-type: none"> • I must write it down otherwise I will forget it M5.102 • I tend not to forget because I use prompt cards/ write things down M2.35; M2.36; M2.37; M4.73 • Pneumonic has helped me a lot M5.84; 		<p>literacy skills, memory and on concentration</p> <ul style="list-style-type: none"> • N6.F; N7.F <p>Neuro-linguistic Programing</p> <p>Anchoring</p>	<p>N6.22; N6.45; N6.52; N6.61; N6.70; N7.25; N7.131; N7.69 (re drug admin) N7.115; N7.120; N7.126; N7.127; N7.131 (names)</p> <ul style="list-style-type: none"> • Implementing Care • N1.64; N2.32; N2.33; N4.86; N6.61; N7.69; N7.131 • Physical action needed to code into brain/muscle memory N2.33; N2.37; N2.38; (if more than one task) • Spelling/documenting N3.13; N6.22; N6.83; N7.23; N7.25 • When busy N3.111; N7.69 • New ward/names N5.35; N6.52; N7.126; N7.127 • Phone numbers N6.45 • To do list to help you remember N4.139; N6.77
<p>Wright (2013) **</p>	<p>Stressed/stressful</p> <ul style="list-style-type: none"> • Paper work initially felt <u>overwhelming</u> M1.21; Words mixed up M2.41 • Stressful (P/N ward experience) M1.44; M1.46; M1.47 • ..quite difficult to organise self M5.116 • Frustrating M3.30; M4.73; M4.76 (P/N) 	<p>May be prone to stress when writing a lot of information</p> <ul style="list-style-type: none"> • M2.F <p>May be prone to stress</p> <ul style="list-style-type: none"> • M4.F 	<p>May be prone to stress</p> <ul style="list-style-type: none"> • N3.F; N7.F <p>Stress may have adverse effect on literacy skills, memory and on concentration</p> <ul style="list-style-type: none"> • N6.F; N7.F <p>Becomes anxious in front of a group and finds it difficult putting thoughts into words</p> <ul style="list-style-type: none"> • N7.F 	<p>Stressed /stressful</p> <ul style="list-style-type: none"> • N1.16; N3.15; N3.17; N3.35; N3.54; N3.60; N3.62; N3.63; N3.88; N3.111; N3.113; N4.140; N5.7; N6.61; N7.50 • Stress makes me stutter N7.50; N7.51 • I make more mistakes when under stress N7.50 • Nervous/ anxious N3.93; N3.94; N3.111 / N6.34; N6.61; N6.70; N7.131 • Frustrating; N3.26; N3.29; N3.111; N5.12
<p>Labour Ward experience</p>	<p>Huge amount of paper work</p> <ul style="list-style-type: none"> • M1.24; M1.26; M1.27; 	<p>Her record keeping is exceptionally good M3.P5</p> <p>Her record keeping is</p>		



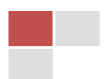
Lack of familiarity	<p>I write more than I need to</p> <ul style="list-style-type: none"> • M1.28 <p>Unable to spell unfamiliar words e.g. dystocia, paediatrician, and anaesthetist.</p> <ul style="list-style-type: none"> • M1.21; <p>(I just wrote them down glued to the wall!)</p> <ul style="list-style-type: none"> • M1.22 <p>You should do normal in 1st year ... / lack of familiarity with abnormal</p> <ul style="list-style-type: none"> • M2.56; M2.58 	good including management M4.P5		
Positive	<p>You have to fit in with lot of different mentors/styles</p> <ul style="list-style-type: none"> • M3.20 <p>I need to do it/feel things rather than just be given information (e.g. nil to see if observing an ARM being done)</p> <ul style="list-style-type: none"> • M3.27 <p>Tactile learner</p> <ul style="list-style-type: none"> • M3.14; M3.24; M3.26; M3.45 <p>I like it especially <u>with</u> <u>VE</u> when mentor would say 'tell me what you are feeling'</p> <ul style="list-style-type: none"> • M3.27 <p>I think it's good... I think practical... I am ok practically</p> <ul style="list-style-type: none"> • M4.35 <p>It's fine/I love it</p> <ul style="list-style-type: none"> • M4.41 <p>It's all been positive... all been good</p> <ul style="list-style-type: none"> • M5.46 	<p>'... is very organised</p> <ul style="list-style-type: none"> • M3.P5 <p>'..she appears to be confident on postnatal ward but less so on labour ward' ... have found her to be very competent in all areas'</p> <ul style="list-style-type: none"> • M4.P3 		
Safety	<p>I write wrong time when on night shifts</p> <ul style="list-style-type: none"> • M4.53; M4.54; M4.55 <p>Stickers save time/are useful</p> <ul style="list-style-type: none"> • M1.27; <p>I like those a lot</p> <ul style="list-style-type: none"> • M1.49; M1.52; 			



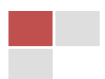
<p>Vaginal examinations</p> <p>VEs & deliveries are challenging</p> <p>Problem with VE's</p> <p>Deliveries</p>	<p>M1.50;</p> <p><u>it helps</u> the stickers help a lot!</p> <ul style="list-style-type: none"> • M1.51; <p>I find Tick boxes easier</p> <ul style="list-style-type: none"> • M5.18; M5.26 <p><u>I love doing VEs</u></p> <ul style="list-style-type: none"> • M4.42 <p><u>VE's are easy/simple to do</u></p> <ul style="list-style-type: none"> • M5.65; M5.66 <p>Problem with VE's I find positions affect me a lot.</p> <ul style="list-style-type: none"> • M5.48 <p><u>Difficulty diagnosing the station/ positions on VE</u></p> <ul style="list-style-type: none"> • M5.66; M5.67 <p>Sometimes my <u>lefts and rights, anterior and posterior get confused</u></p> <ul style="list-style-type: none"> • M5.69 <p>Just getting that (VEs) into perspective <u>took a little bit of time</u></p> <ul style="list-style-type: none"> • M5.69 <p>Deliveries Conducting delivery is daunting</p> <ul style="list-style-type: none"> • M1.31 M1.32 <p>A big responsibility</p> <ul style="list-style-type: none"> • M1.31 <p>Clumsy/awkward</p> <ul style="list-style-type: none"> • M3.24 <p>I prefer 3rd stage delivery because there is more risk</p> <ul style="list-style-type: none"> • M5.45 <p>Coping with deliveries I'm quite thorough/go by the book</p> <ul style="list-style-type: none"> • M1.32 <p>Write down on a piece of paper first</p> <ul style="list-style-type: none"> • M4.37 <p>I have to be organised</p> <ul style="list-style-type: none"> • M5.47 <p>If on all four that is back to front, that <u>confuses me.</u></p> <ul style="list-style-type: none"> • M5.48 	<p>Found her competent in all areas M4.P4</p>		
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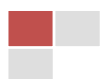
	<p>Pictures is better/I have to go away and draw (after carrying out a VE)</p> <ul style="list-style-type: none"> • M5.68 I take my notes with me and write them as I do it • M5.73 Initial P/N care is great! • M1.44 			
Continuity of mentors	<ul style="list-style-type: none"> • The biggest thing is continuity with your mentor M2.114 ; M4.61; M4.65 • I get 3 mentors in a year, that is brilliant / I have continuity with the mentor M2.117; M2.115; M4.43 			
***	<p>Safety conscious/vigilant</p> <ul style="list-style-type: none"> • M1.10 ; M2.55; M2.66; M2.67; M3.12; M3.20; M3.52; M5.95; M5.108 • Vigilant M2.13; M3.44 • Self-aware M1.15; M3.46 • Also see Check over M3.12; 	<p>M3.P2 she always reads up on anything she is unsure of</p>	<p>...questioning a number of staff about the same issues...</p> <ul style="list-style-type: none"> • N1.P1 Has been confident and enthusiastic. <u>Never afraid to ask questions, which I believe has helped her a great deal...</u> • N3.P4 She has good communication skills and is reliable is carrying out clinical skills <u>with attention to details</u> • N6.P 	<p>Safety conscious/vigilant</p> <ul style="list-style-type: none"> • N1.31; N1.48; N1.73; N2.49; N2.54; N2.64; N3.21; N3.26; N3.27; N3.28; N3.30; N3.31; N3.44; N3.57; N3.62; N3.63; N3.65; N3.66; N3.68; N3.95; N3.100; N4.103; N5.55; <u>N7.67 (with drug admin)</u> • Self-aware N2.64; N3.31; N3.48; N3.62; N7.70 (admits fault with drug error) • Mental check list N2.30; N2.49 • Also see Check over N1.73; N2.54; N2.64; N3.92; N4.103; N5.55; N7.24; N7.73
<p>Care implementation / hands on practice</p> <p>NPL World (2012)</p>	<p>Performing tasks</p> <ul style="list-style-type: none"> • Daunting M1.31 M1.32 • Clumsy/awkward M3.24 • Tactile learner M3.14; M3.24; M3.26; M3.45 • Slow M3.49 • Pictures is better, I have to go away and draw M5.68 		<p>Displayed a mature attitude and approach which has helped him to participate more actively and effectively ... no doubt he will make a knowledgeable and skilled nurse</p> <ul style="list-style-type: none"> • N2.P1 <u>Neuro-linguistic Programing Anchoring</u> <p>...has been a pleasure to work along-side. She is hard working, has a great attitude to team work and is <u>very well thought of within the ward</u>. She is very eager to learn and has great initiative and is also an expert communicator</p>	<p>Performing tasks:</p> <ul style="list-style-type: none"> • <u>That is a strength</u> N1.28; N1.33; N6.56; N7.19; N7.34 • <u>I think it found me</u> N7.39 • <u>I've got a bit of a talent for it</u> N7.62 • <u>That is what I'm good at</u> N7.34 • Tactile learner N2.31; N2.32 • <u>Physical memory (NLPA):</u> N2.32 Physical action is needed. 'So like if I touched my shoulder or pinched



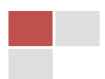
		<p>both with patients and her peers</p> <ul style="list-style-type: none"> • N3.P6 ...displays great potential; she is very hard working, <u>caring</u> and <u>conscientious nurse who consistently strives to deliver a high standard of care. She is an excellent team player</u> • N3.P5 The student developed own techniques to work alongside individuals in both care settings. Has come up with key tools that could be implemented in line with.... • N4.P5 she has consistently worked at a higher level than expected • N4.P2 <p>Has been a pleasure to work with; <u>she is a very organised person, and when she has her own set of patients, knows about what is going on</u>.</p> <ul style="list-style-type: none"> • N3.P7 	<p><i>my finger or crossed my fingers or did something physical in association with what I needed to remember my brain coded it better, it stayed in there better'</i> N2.33; N2.35; N2.42; N2.44</p> <ul style="list-style-type: none"> • I enjoy that N4.62; N4.63; N7.34 • <u>No problem with actual hands</u> on N5.35; N5.43; N6.56; N7.82 • I have got to be able to <u>visualise</u> the instruction before I can perhaps carry it out N7.17; N7.35; N7.37; <u>N7.40</u> (e.g. aseptic technique- I <u>Had to go into bathroom to imagine it was a ward room.</u> N7.43; N7.44; N7.45) • <u>Need to familiarise self with a place first</u> N7.17; N7.43; N7.44; N7.45; N7.46; N7.54 • I get a little confused due to lack of familiarity N7.46; N7.51 • Learning new technique takes me a bit longer than others N7.53 • Managing a group of patients/running a shift • I don't know how to organise things; N4.65; N4.143 • More likely to make mistake when someone watching over you N4.110 • Some structure from mentor needed N4.144; N4.145 • I have taken responsibility. N5.47 • Mentor was too controlling N5.48 • It wasn't easy/ I had to try and manage
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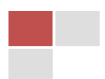
				<p>my time N1.56</p> <ul style="list-style-type: none"> • I <u>prioritise</u> N1.67; N2.77; <u>N3.68</u>; N6.77; N7.87; N7.90; N7.94 • I have no problems with that N7.65 <u>need to visualise the system first</u> N7.94 • <u>Multi-task is challenging</u> N2.81; N3.88; N3.107; N3.111; N4.93; N6.70; N6.72; N6.125; N7.79; N7.80; <u>N7.F</u>
	Chunk/break word into syllables M3.12; M3.40			Break into smaller chunks/ syllables <ul style="list-style-type: none"> • DSN2.64 (numbers)
*** Ridley (2011) Child & Langford, (2011) Blankfield, (2001) Morris & Turnbull (2006)	Disclosure/non-disclosure <ul style="list-style-type: none"> • M1.61; M1.62; M1.63; M1.64; M1.65; M1.75; M3.9, M3.10, M3.11; M4.61; M4.62; M4.63; M5.150; M5.153; M5.155; M5.161 • So you wouldn't just tell anybody M1.66 • I don't want to start every shift going by the way I am dyslexic M1.64 • Depends on length of placement M1.62; M1.63; M3.9; M3.10 • Disclose after working with mentor for a while and if I need help for something M1.65; M4.62; M4.63 or get queried M1.75 • Fear of being viewed as a retarded person/being judged M3.11 • Fear of not getting a job on qualifying M5.155 <u>M3 (typed note sent separately)</u> 			Disclosure/non-disclosure: <ul style="list-style-type: none"> • Sometimes I get asked why I work that way and I just say honestly I have dyslexia and <u>this is what works for me</u>. I will return your notes and then be back N1.29 • I don't disclose on placement because of past experience DSN3.103 • Mentor was prepared to help. N5.73 Fear of being judged <ul style="list-style-type: none"> • Problem of being labelled as stupid N5.73 • Or lazy or you that don't listen N5.74
	Repetition/ Familiarity/ past experience <ul style="list-style-type: none"> • M1.21; M1.28; M1.39; M2.25; M3.41; M5.23; M5.32 			Familiarity/ past experience makes work easier <ul style="list-style-type: none"> • N1.17; N1.20; N2.75; N2.76; N6.91
*** Morris &	Strengths Self-aware <ul style="list-style-type: none"> • M1.15; M2.28; 	'... always read up on anything she is unsure of	Has been confident and enthusiastic. <u>Never afraid to ask questions, which I believe has</u>	Strengths <ul style="list-style-type: none"> • Self-aware N2.64 • Safety conscious



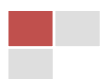
<p>Turnbull, 2006; Crouch, 2008</p> <p>Reid & Kirk 2001</p> <p>Reid & Kirk 2001</p>	<p>M3.46</p> <p>Safety conscious</p> <ul style="list-style-type: none"> M1.10; M2.13; M2.55; M2.66; M2.67 <p>I cope really well/ I'm much more of a hands on person/ I think practical/ I am practical</p> <ul style="list-style-type: none"> M2.41; M4.21; M4.35; M5.43; M5.44 <p>Prioritising /organising</p> <ul style="list-style-type: none"> M1.44; M1.48; M2.75; M3.52 /Prior preparation M1.9; M2.37 <ul style="list-style-type: none"> Observational skills M5.32; M5.33; M5.34 / photographic memory M3.41; M3.42 Good verbal skills- M1.11; M2.42; M3.16; Relational/caring M1.32 M1.45; M5.37 Flexible M5.37 	<ul style="list-style-type: none"> M3.P2; M4.P5 Conscientious. M4.P4 ...Always asking questions M4.P3 ...works well independently M3.P4; M3.P6 Very organised M3.P5 She communicates extremely well M3.P4; M3.P6 Very caring M4.P3 	<p><u>helped her a great deal...</u></p> <ul style="list-style-type: none"> N3.P4 <p>Has been an excellent team member – demonstrates a mature understanding</p> <ul style="list-style-type: none"> N5.P5 ...is reliable... is carrying out clinical skills <u>with attention to details</u> N6.P <p>Has been a pleasure to work with; she <u>is a very organised person</u>, and when she has her own set of patients, knows about what is going on' N3.P7</p> <p>...displays great potential; she is very hard working, <u>caring and conscientious nurse who consistently strives to deliver a high standard of care. She is an excellent team player, very cheerful and outgoing personality.</u> Her patients very much <u>like her</u> and regularly say so</p> <ul style="list-style-type: none"> N3.P5 <p>...good communications/ interpersonal skills</p> <ul style="list-style-type: none"> N2.P2; N3.P7; N6.P <p><u>The student developed own techniques to work alongside individuals in both care settings.</u> Has come up with key tools that could be implemented in line with....</p> <ul style="list-style-type: none"> N4.P5 Implemented some changes to medication charts N4.P3 Shown a lot of initiative N5.P4; N5.P5 	<p>N1.31; N1.48; N1.73; N2.54; N2.64; <u>N3.21; N3.26; N3.27; N3.28; N3.30; N3.31; N3.44; N3.57; N3.62; N3.63; N3.65; N3.66; N3.95</u></p> <ul style="list-style-type: none"> Practice is a strength N1.56; N1.28; N1.60 N3.48; N3.100; N5.9; N5.14; N5.35; N6.56; N7.34; <u>N7.39</u> Prioritising/organising N1.67; N2.77; N3.13; N3.17; N3.51; N3.52; N3.54 / N1.64; N1.66; N2.88; N3.66; N6.77; N7.87; N7.90; N7.94 Observational skills N1.67 / photographic memory N3.77; N3.78 Good verbal skills N1.33; N2.28; N5.15; N6.58 Relating /good interpersonal skills N1.29; N1.28; N1.33 N2.28; N3.49; N6.58 Caring; N1.59 More empathic N7.19; N7.35; N7.58; N7.60 Good at drug calculations N3.92; N3.96 Slowing things down is often very helpful for people with learning disabilities N7.38 <u>I think it found me</u> <u>N7.39</u> <u>I've got a bit of a talent</u> N7.62 Creative/ problem solve easily/ see things outside the box N5.9; N5.62; N5.63; N5.64; N5.65
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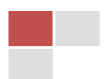
<p>**</p> <p>Crouch 2010</p>	<p>Helpful mentor/staff:</p> <ul style="list-style-type: none"> • Mentor also has dyslexia ... <i>very good at helping me.</i> M2.19; M2.20 M2.21; M2.35; M2.36; M2.68; M4.65 • Taught me dyslexic shorthand M2.46: • Mentor used prompt cards M2.34; • Yeah and she has passed it to me <i>so that's a really good technique that I have picked up from her.</i> M2.36 ; M2.37; M2.93 • Mentor aided me in different ways M4.66 <p>Support from university staff</p> <ul style="list-style-type: none"> • M1.6; M1.20 		<p>Helpful Mentor</p> <p>Mentor allowed me to explore as much as I wanted to and supported me in every aspect</p> <ul style="list-style-type: none"> • N2.P1 <p>Mentor allowed me to grow as a student.</p> <ul style="list-style-type: none"> • N2.P2 <p>Very supportive mentor</p> <ul style="list-style-type: none"> • N6.P 	<p>Helpful Mentor/staff:</p> <ul style="list-style-type: none"> • Suggestion from Mentor <i>'to write them on a bit of paper, to take it away and do it. <i>It worked really well for me.</i>'</i> N1.47 • Mentors encourage use of appropriate learning aids e.g. calculators N3.110; • Mentors give constructive feedback –they are really good at that N3.110 • <u>Understanding mentors/ amazing mentors</u> N1.48 N3.114; staff N2.101; N2.102; • <i>'I've never had someone, a Nurse, turn round and say no do it.'</i> N1.80 • <u>Indirect supervision</u> by mentors gave me confidence N4.112 • Asked how they could help N5.69; N5.70 • <u>Lucky to have mentor always checked over for me whenever I write a new word for medication</u> N6.124 <p>Support from university staff</p> <p><u>I was actually given those from the university (reference to the overlays)</u> N1.40</p> <ul style="list-style-type: none"> • <u>There are things that can be put into place to help and I've utilised those things and I'm doing a lot better</u> • N1.54 • Academic support N1.55 • <u>I've got uni ball pens. I got them from my dyslexic tutor</u> N3.73
<p>***</p>	<p>To do list:</p> <ul style="list-style-type: none"> • M1.32; M2.75; M2.106; M3.52; M4.67; M4.73 • Helps to prioritise 			<p>To do list:</p> <ul style="list-style-type: none"> • N4.139; N6.80; N7.94 • Helpful N1.66 ; N3.111; N4.87;



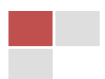
	M2.75;			<ul style="list-style-type: none"> Helps to prioritise N1.86; N6.77 I use different <u>colour pens</u> N3.71; N3.73 N3.75; N3.76; N3.82;
	I use address book <ul style="list-style-type: none"> M5.74 			
Morris & Turnbull, 2006	Organising skills Difficult to organise yourself (P/N) <ul style="list-style-type: none"> M5.116 	Has poor time management <ul style="list-style-type: none"> M5.F 	Poor organisational skills <ul style="list-style-type: none"> N1.F; N3.F; N6.F; N7.F Poor time management <ul style="list-style-type: none"> N3.F; N4.F; N7.F 	Organising skills <ul style="list-style-type: none"> Poor at home N3.62 I don't know how to organise things; N4.65 Good N1.28; N1.67 I need to be more organised N6.10
***	Check-up/check over <ul style="list-style-type: none"> Check over and over M2.66; M2.67; M3.48 I would think in my head /recall M3.12 Spell check with dictionary or computer M1.18; M2.19; M3.12 Check with the woman M3.14; M3.15 Check with mentor M1.16; M3.P; M4.72; M5.28 Use BNF /drug dictionary M1.15; M1.17; M2.83 		...has been confident and enthusiastic. <u>Never afraid to ask questions, which I believe has helped her a great deal...</u> <ul style="list-style-type: none"> N3.P4 	Check up/ check over <ul style="list-style-type: none"> Check over and over N2.49; N2.54; N2.64; N4.58; N4.58; N4.60; N4.103; N5.41; N5.55; N5.56; N5.57; N5.58; N6.93; N7.23; N7.24 Mental check list N2.30; N2.49; N2.64 Spell check with dictionary or computer or thesaurus N1.92; N1.94; N2.18; N2.25; N2.51; N2.61; N3.106; N5.22; N1.23; N5.24; N7.119 Check with patient N1.10; N1.15; N2.18; N3.45 Check with mentor N1.22; N1.73; N1.96; N3.103; N3.106; N6.93 With colleague N1.24; N1.93; N3.106; N4.117; N6.74; N7.32; N7.33 Use BNF N1.72; N3.28; N6.89; N6.90
	Dyslexic short hand symbols <ul style="list-style-type: none"> M2.34; M2.35; M2.36; M2.46; M5.23; M5.25; Example you do a heart for heart beat M2.48; M2.49 			I use shorthand writing <ul style="list-style-type: none"> N7.11



***	<p>Write on a piece of paper:</p> <ul style="list-style-type: none"> • M1.22; M1.23; M1.25; M2.46; M2.52; M2.53; M4.37; M4.59 <p>For delivery and in an emergency</p> <ul style="list-style-type: none"> • M1.43; M2.46; M2.52; M2.53; M4.37; M4.59 <p>Make list of boxes on handover sheet:</p> <ul style="list-style-type: none"> • M3.52; 			<p>Write on a piece of paper:</p> <ul style="list-style-type: none"> • During assessment/care planning N1.10; N1.21; N2.14; /N7.29; N7.30; • Bedside nursing N1.29; N1.39; • managing group N1.64; (helped manage time) N1.66; (that really helped me) • Answering phone N2.81; • Everything N3.13; N3.21; N3.86 (that's how I get thru placement) • So not to forget N1.10; N3.70; N7.98; N7.99 <p>Handover/ Make list of boxes on handover sheet</p> <ul style="list-style-type: none"> • Handover N3.70; N7.98 • N6.14; N6.15; N6.26; N6.27; N6.29 <p>I used a note book which helped</p> <ul style="list-style-type: none"> • N6.14
***	<p>Miscellaneous I find stickers/tick boxes helpful/ easier/ saves time</p> <ul style="list-style-type: none"> • M1.27; I like those a lot M1.49; M1.52; M1.50; it helps the stickers help a lot! M1.51; M3.52; M4.67; M5.18; M5.26; M5.77; M5.81; M5.88; M5.82; M5.97; M5.99; M5.122 <p>Pneumonic have helped</p> <ul style="list-style-type: none"> • M5.85 I use abbreviations • M5.88 <p>Write in address book</p> <ul style="list-style-type: none"> • M5.74; M5.85 <p>I use different coloured pens;</p> <ul style="list-style-type: none"> • M1.47; M5.95; 			<p>Miscellaneous I find stickers/tick boxes helpful/ easier</p> <p>N3.13; N3.38; N3.75; N4.23; N6.10 N6.77; N6.14; N6.15; N6.26; N6.27; N6.29; N6.78</p> <p>Keep a reflective diary</p> <ul style="list-style-type: none"> • N1.89; N1.90; N3.106 <p>Share load:</p> <ul style="list-style-type: none"> • N1.67 <p>Use Dictaphone/lot of technology for note taking</p> <ul style="list-style-type: none"> • N2.47; (R.88) N2.88 <p>Structured/methodical</p> <ul style="list-style-type: none"> • N3.18; N3.25 <p>I use different colour pens and everything/ they are</p>



	<p>M5.97; M5.99 Colour codes identify type of drug, route and dosage</p> <ul style="list-style-type: none"> • M5.122 			<p>brilliant</p> <ul style="list-style-type: none"> • N3.72; N3.73; N3.75; N3.76; N3.77; N3.119; N6.14; N6.15; N6.16 <p>Repeat things</p> <ul style="list-style-type: none"> • R.68/N2.68; R.93/N2.93; N3.106; N6.20; • Say it back to the person N4.94; N7.47
	<p>P/N Experience</p> <ul style="list-style-type: none"> • <i>Initial PN care on L/W is great</i> M1.44 • <i>Busy ward /Need to prioritise/ Manage to give adequate care.</i> M1.44 • Stressful M1.44 • <i>If it's one bay that's fine, if it's two bays it's not fine.. that's too many</i> M1.46; M1.47 • <i>All my experience have been positive</i> M2.65; M2.67 • <i>The hands on bits are fine</i> M2.65; M4.67; • <i>More hectic /Busier and tricky/ difficult to organise yourself</i> M5.95; M5.116 	<p>'Works methodically with compassion'</p> <ul style="list-style-type: none"> • M4.P5i <p>'Thoughtful in carrying out work'</p> <ul style="list-style-type: none"> • M4.P5ii <p>'Appears very comfortable... and shows competence in knowledge and skills.'</p> <ul style="list-style-type: none"> • M4.P5iii 		
Care Evaluation				<p>Experience of Care evaluation</p> <ul style="list-style-type: none"> • It wasn't easy. I had to try and manage my time N1.56 • Quite useful N4.124 • There is a process to walk through N2.82 • I document everything in detail effortlessly using coloured pens N3.68; N3.69; N3.72 • No problems with evaluating care N5.60; • Not much problem but lacks confidence N6.107
Confidence **	<p>Lack of confidence/low self esteem</p> <ul style="list-style-type: none"> • M3.23; M3.59 <p>Lack of confidence with drug admin</p> <ul style="list-style-type: none"> • M5.117; M5.125 	<p>A confident and competent student midwife'</p> <ul style="list-style-type: none"> • M3.P <p>Needs to work on her confidence (A/N; L/W; Community)</p> <ul style="list-style-type: none"> • M4.P 		<p>Confidence/ Lack of confidence</p> <ul style="list-style-type: none"> • N1.71; N1.89; N3.97; N3.111; N7.131 (with new activities) <p>I look very confident but inside I am not usually</p> <ul style="list-style-type: none"> • N7.129 / <p>Lack of confidence</p>



	Feels quite confident on P/N ward <ul style="list-style-type: none"> • M5.95 		...has been confident and enthusiastic <ul style="list-style-type: none"> • N3.P2; N3.P4 	with drug admin <ul style="list-style-type: none"> • N3.92; N3.97; N3.111 Lacks confidence with new activities <ul style="list-style-type: none"> • N7.131 Lacks confidence with evaluation of care. <ul style="list-style-type: none"> • N6.107; N6.111; N6.112 Forgetfulness made me lack confidence <ul style="list-style-type: none"> • N4.140 Confidence grew <ul style="list-style-type: none"> • N4.112; N5.59 I'm quite confident /confident with work I do <ul style="list-style-type: none"> • N3.110
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N2.19: N2.20 Drop down menu made care planning easier to manage

Strengths

DSN128. My strongest point is practice. I am getting A's and B's in practice.

DSN1.60; One of my patients was an ex-paratrooper and he wrote a letter of recommendation saying '*the student nurse is fantastic*'

DSM1.44 Initial postnatal care on L/W is great

Caring attitude –DSM1.45

Time

DSN1.31 Even though that might take longer, that means I'm accurate in my recordings. Then I'll bring back the notes to that patient because I've got the time to do it

DSN2.18 I was given the space and time to do it

More detailed guidelines needed for essays - DSN1.83

Drugs:

DSN2.74 ...actually one of the things that I picked up from watching my mentor and other Nurses doing the drug round is they tend to identify medication by the colour of the box.

Multi task is difficult N2.81

Supportive staff

I was actually quite surprised in coming to University in the sense of how much understanding and support there is (N2.101)

One of the first big lectures we had in the big lecture theatre was from a lady from the student support and she outlined that in general terms people with dyslexia tend to be quite empathetic, quite understanding. And Nursing is an environment that tends to attract people with dyslexia for those kinds of pretences. It was nice in that it never seemed to be an issue whereas the other jobs I've had as soon as I've declared it all of a sudden it has become a problem... I've been pleasantly surprised by how much and by how far it has come. People's understanding of it now as well (N2.102)



Neuro-linguistic Programing Anchoring (Terry Elston)

'Anchoring in [neuro-linguistic programming](#) is a term used for the process by which you apply a gesture, touch or sound at the peak of a [state](#), either in oneself or someone else. The said anchored state can then be recalled or re-activated by reapplying the gesture, touch or sound.

Basic anchoring involves ...elicitation of a strong congruent experience of a desired state, whilst using some notable stimulus (touch, word, sight) at the time this is most fully realized. In many cases, repetition of the stimulus will re associate and restore the experience of the state.'

By NPL World (2012) taking your training personally. Available from
<http://www.nlpworld.co.uk/nlp-glossary/a/anchoring/> Accessed on 06.22.2014

'A NLP State Relates to our internal emotional condition. In NLP we believe that the state determines our results, and so we are careful to be in states of excellence. In NLP, our Internal Representations, plus our State, and our physiology results in our behaviour'

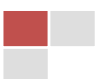


Table 2i (part 2) shows comparison of students' evaluative comments with those of the mentors on the poster guidelines

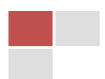
	Student evaluation of poster guidelines /strategies	Mentor Evaluation of poster guidelines/strategies
<p>Broad/ bang on really</p> <p>Useful/very useful</p> <p>Good, really really good /really like it Relevant /helpful</p> <p>Perfect /brilliant Interesting/fantastic</p> <p>Structure is very helpful</p>	<ul style="list-style-type: none"> • This is quite, it is broad, but it does meet a lot of the things I have with my dyslexia. It is quite bang on really N1.88. • I can relate to a lot of it. M5.159; M5.160; N6.127 • Quite useful N4.137 • I wish I had something like this from the beginning because the solutions are really useful, things that I eventually learnt to use N6.127 • This is good/ This is really good N3.101; N3.104; N5.77; N5.86; N6.123; N6.124; N6.136; <u>N6.137</u>; N7.108; N7.112; N7.113 really really good N3.118; I like this/ though / I really like it. N3.102; N3.103 • It's relevant / valid / true N3.114; N5.86; N5.87 • They are brilliant / that is brilliant N3.117; M2.110 • This is perfect N3.102 • It's interesting M3.63; M3.64 • I'll definitely give it to my mentors M2.111 • It's really good because it gives information on things that mentors should or shouldn't do/what students should do. <u>N6.137</u> • Giving a structure to a student is very helpful N4.141 	<ul style="list-style-type: none"> • Helpful, clear and able to get across ways to support individuals Ment4; Ment7; Ment9; Ment19 • Very useful tool; useful guidelines for mentors supporting students ; those qualified with dyslexia Ment2; Ment5; Ment6; Ment7; Ment8; Ment9; Ment13; Appears useful Ment21 • Relevant information Ment6 • Informative Ment7 • Very detailed Ment3 • Most importantly it's being addressed within the nursing field Ment5 • Very good for mentors... Ment12; Ment18 • Helped me to view how I prepare my teaching methods and meeting different learning needs especially with students with dyslexia Ment7 • Fantastic ways of helping dyslexic students /easy to read Ment10 • Comprehensive/easily applied to practise Ment11 • Well structured, main points highlighted, simple. Men1 • Good, simple and easy to read Ment9; Ment13; Ment17; Ment21 • Poster looks very colourful and written clearly. Ment17 • Repeat things, diary keeping, audio-visual aids, give students time to complete documents; very useful things, have supported student with dyslexia before Ment9 • Fantastic ways of helping dyslexic students F Ment10
Identifying strategies He / she uses (from poster) and evaluating same as really good/really useful	<ul style="list-style-type: none"> • To do list M2.106; N4.139; • Calculator N1.89; M2.106 • Coloured background (blue) N1.89; M4.79 • Keeping a diary N1.89; N6.124 • Address book M5.166 • I take myself away to write N3.107 • Enough time to read N5.85 • Avoid overloading M3.60 • Audio visual aid N5.76 • Repeat things N1.89; N6.124 • To ask the person on the phone to repeat the information to be written down and to get some clarification from the other person when necessary. <u>I think that's really good. That's what I've learnt to do eventually</u> N6.126 • Show template where possible. N6.126 	<ul style="list-style-type: none"> • Repeat things, diary keeping, audio-visual aids, give students time to complete documents; very useful things, have supported student with dyslexia before Ment9 • Fantastic ways of helping dyslexic students F Ment10
Recommendation For poster guidelines		



<p>(check transcript DSN5 – R.102 - R.106) Make it interactive</p> <p>Add to poster</p> <p>Subtract</p>	<ul style="list-style-type: none"> • Would be quite good just to give to your mentor / everyone in general N3.104; N5.93; student N5.93; N5.94 • Make something that is for the mentor to use with the student N5.101; N5.102; N5.105.; N5.106 • Give to student and ask them to highlight the ones that are most relevant to them N5.96; N5.97; N5.98; N5.101 • Relevant but omit research aspects N3.114 • Make sure mentors understand N4.140 • If there was something like this in the student pack in placements, it would be really useful N6.142; N6.143 • Some structure from mentor needed 4.141; N4.144 • Giving a structure to a student is very helpful N4.141 • Note book is a good one N3.119 • Prioritise own patients list of needs N3.119 • Continuity with your mentor M2.114; M2.115; M2.117 • Allow student the use of electronic devices e.g. a laptop N5.77; N5.80 • Staff handwriting should be legible N5.82; N5.83; N6.126 • Prioritise them; put some in bold N5.94 • I don't think I have anything to add I don't think N6.127 • I can't think of anything else. I think it is very good N6.136 • Uni ball pens are brilliant N3.119 • Add use of different coloured pens as strategy for forgetfulness N6.129; N6.130; N6.132; N6.135 • Carry highlighters in your pocket because that helps N6.134 (also see M1.47 and M5.95-99) • And tick boxes, yes N6.133 	<ul style="list-style-type: none"> • Even when students with dyslexia qualify it's also useful to use these strategies. Ment7; Ment8 • How can we integrate this in clinical practice not just for student nurses but more so for nurses who have a practicing pin and have dyslexia? Ment8 • Should be in every workplace these guidelines Ment13 • In clinical practice, needs to have minimal content Ment4; Ment12; Ment14; Ment16; Ment22 • Add-may be a phone number where more information or help could be found Ment13 <p>Clustered, takes a lot of reading, minimal content needed in practice Ment3</p>
<p>Other points of interests</p>	<ul style="list-style-type: none"> • '... I wouldn't want them to think I need to help her much more because she is dyslexic.' M5.154 • 'Yeah, I just wouldn't want to them to think that I needed additional support.' M5.161 • 'I think it's a very interesting thing that you are doing here because it's never been, to my knowledge, been looked at and it needs to be done.' M5.163 • And it will help people a lot and I'm really interested in the outcomes of what you find. I find this really interesting, what strategies you find that help people in the future. I think it's great.' M5.164 	<p>Could apply to many students working shifts and learning at the same time; tired, stressed difficult environment etc. not just dyslexic Ment22</p>



	<ul style="list-style-type: none"> • ‘... ask the person on the phone to repeat the information /get some clarification from the other person when necessary. <u>I think that’s really good. That’s what I’ve learnt to do eventually but I think that’s is a really good thing to suggest to students from the beginning. I think it’s really good...</u>’ N6.126 • ‘...Staff handwriting should be legible, yes definitely! Staff handwriting is very difficult! I think <u>that’s a really good one!</u>’ N6.126 • This one is really good because it gives information on things that mentors should or shouldn’t do, <u>like avoid overloading with information or repeat things where necessary. But then it also gives information on what students should do, for example, encourage students to use audio visual aids to help with spell checking, that is something a student could take on board. I think this does kind of hit both of them.</u>’ N6.137 • ‘When I go to every placement I get like a student pack. <u>If they had me something like this in there, it would be so useful.</u> Yeah obviously every student isn’t dyslexic but in case they are it’s there’ N6.142 • ‘...If there was something like this in the student pack in placements, it would be <u>really useful.</u> If I saw that in my student pack I’d be so relieved, I’d think Oh at least they know they all have dyslexic students and this is our problems. At least they know I will need this help’ N6.143 • ‘...There is no extraneous information there which is what I prefer, if it is a set of instructions. I think <u>that’s really good.</u> I haven’t really got any issues with it at all.’ N7.113 • ‘I’ve always been embarrassed, that somebody’s said to me an instruction and then I’ve gone away and done it and <u>I’ve thought I can’t remember</u> how to do it and I need to go and ask again and I’ve always...oh I’m sorry, I’m really stupid, its just me and I’ve made an excuse but I didn’t know it was the dyslexia at the time. I just thought I wasn’t listening.’ N7.115 • ‘If people understand that you are not stupid and <u>just give you a little bit of time I think that I’d be very good at the job.</u> I can’t speak for other people because I haven’t spoken to any other dyslexic people yet! But I like the way that that is put out and written.’ N7.116 	
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Itamar Sela and Avi Karni (2012) Differences in Learning Volitional (Manual) and Non-Volition (Posture) Aspect of a complex Motor Skill in Young Adult Dyslexic and Skilled readers. *Motor Learning in Dyslexic and Skilled Readers*. September 2012 **7**(9), e43488, p.1-12 Available from www.plosone.org Accessed on 2nd April 2014

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Doi:10.1016/j.tins.2007.02.003 Available at
<http://www.sciencedirect.com/science/article/pii/S0166223607000410#> Accessed 7th Feb 2015

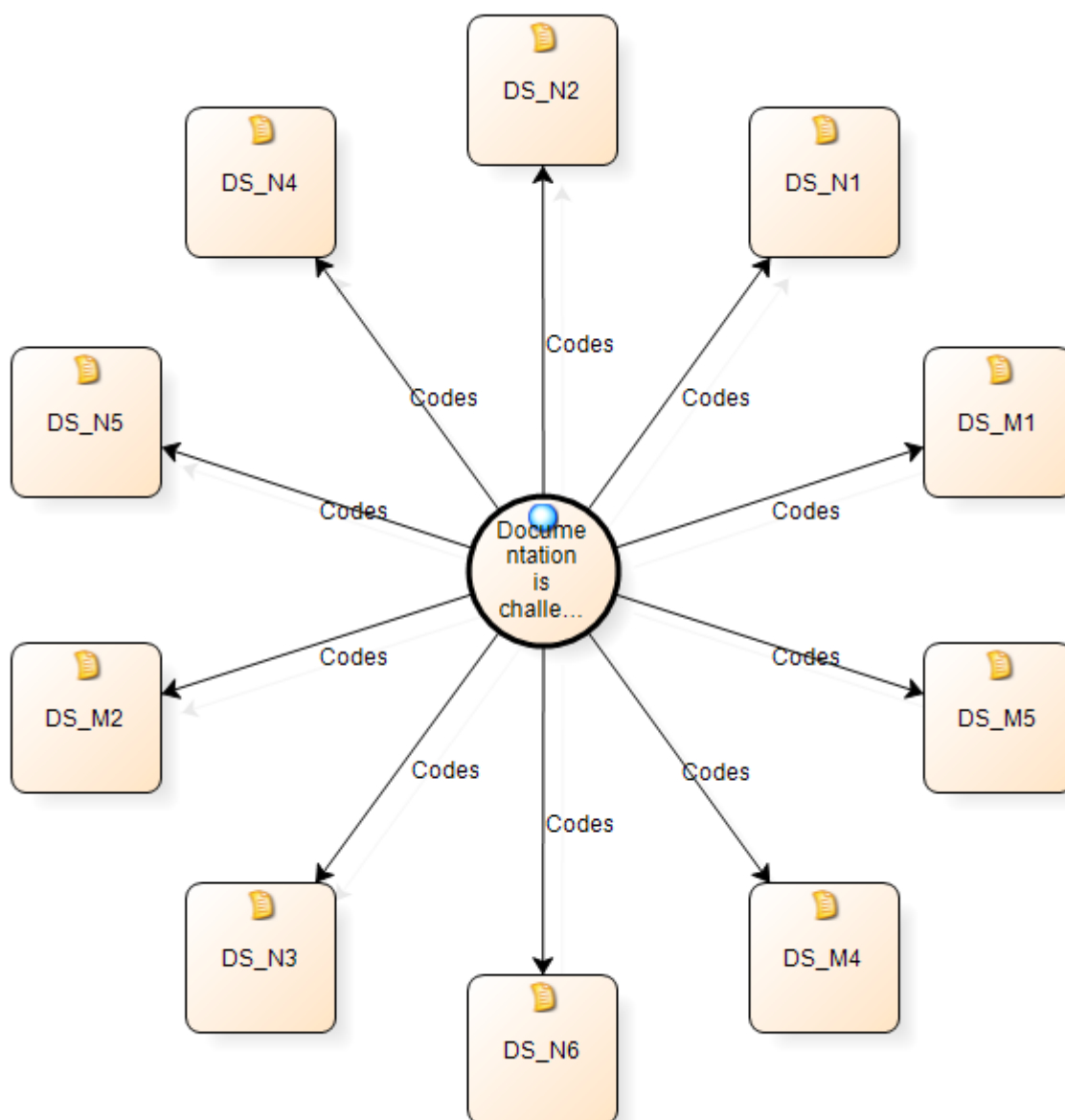
Nicholson R. I. and Fawcett A. J. Brookes R. L. and Needle J. (2010) Procedural learning and dyslexia. *Dyslexia*. **16**, p.194-212
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Sela and Karni (2012)

Wright K. (2013) the role of nurses in medicines administration errors. *Nursing Standard*. Volume 27, Number 44, p.35-40





Sample of analysed data in codes from NVivo 10

Appendix 2J: Table 2m shows overview of ethical considerations

Overview of ethical considerations continued

Issues	Strategies
1. Preliminary papers and authority	<ul style="list-style-type: none"> The researcher had documentation to identify herself (Participant information sheet) Verbal permission was sought and gained from senior management Approval for this research was also sought and gained from UoN RDB/RDC/REC prior to its commencement
2. Choice/ recruitment of participants	<ul style="list-style-type: none"> I also asked permission from lecturers before going into classroom to give information to give out participants' information to students about the research and invited any interested students to contact me later on (48 hours). I placed information about the research on communication boards to inform students and invited interested students to contact me. (A copy of participants information sheet was attached) The snowball method which involves establishing trust with a potential participant and upon completing an interview with that participant, s/he is 'used as an informant to identify other' students with dyslexia was also used to introduce other participants for interviewing (Robson, 2004, p.266) as necessary due to initial slow uptake. A survey (questionnaire) was also placed on NILE site for Mentors for the evaluation of the tool kit used for supporting nursing /midwifery students with dyslexia, and mentors who have had the opportunity to use the tool kit in the last three years were invited to comment on its usefulness. A copy of the tool kit in use was attached. Participants are adults aged 18 years or above and have been formally diagnosed with dyslexia and are student nurses or student midwives at UoN No incentives were offered or given
3. Training	<ul style="list-style-type: none"> Some training already undertaken, and I have previously done some research during and after an MA in Education degree course. However, I undertook further/necessary training after discussion and agreement with my supervisors and my manager.
4. Involvement	<ul style="list-style-type: none"> There was no coercion. Each participant was given the opportunity to make their own informed decision to participate in the research and with the right to be able to withdraw from the research at any time without having to give any explanation (appendices 2A and B). This is in keeping with BERA (2011) and with UoN research ethics guidelines. The Nursing and Midwifery Council require student nurses and midwives to 'be fit for practice', which means being in good health including being mentally capable, so potential participants were not expected to require a friend, advocate or relative.
5. Rights, safety and wellbeing of participant and researcher	<ul style="list-style-type: none"> The face to face, 1 to 1 recorded interviews were undertaken on the university campus in a booked classroom or in a venue of the student's choice, free from distractions. Semi-structured interviews using open ended questions were employed (see Appendices 2D and 2E for sample questions, p278-283). Prompts and further questions were used when necessary to help participant expand on answer given or clarify a point (appendices 2D and 2E) Risk assessment was carried out in relation to the health and safety of the premises for interviewing and of the participant during the interviewing process. No potential physical risk was envisaged. Dyslexia is however a sensitive topic so if a participant had become upset the use of counseling skill would have been offered by researcher who is a qualified counseling skills user. The participant would also have been encouraged to see their personal academic teacher, but this was not necessary. Student support services are also available.
6. Suitability of premises	<ul style="list-style-type: none"> Empty and accessible classrooms booked for the interviews were used Arrangement of furniture were considered to ensure that appropriate relationship between interviewer and researcher is maintained; e.g. active listening skills including adoption of the SOLER position (Egan, 2013) were used to encourage dialogue
7. Method of interview	<ul style="list-style-type: none"> 1 to 1 face to face semi-structured audio taped interview using open ended questions was carried out (lasting for about 45-60minutes) Prompts such as uh ha, hm, ok, and head nodding were used in the process to encourage the participant to talk freely. Further questions to help clarify points or help participant to expand on comments were also used when necessary. A survey questionnaire was used to evaluate tool kit for supporting students with dyslexia
8. Method of recording data	<ul style="list-style-type: none"> Digital tape recorder was used during the semi-structured interview with the students, using open ended questions.
9. Interviewers	<ul style="list-style-type: none"> I conducted the interviews. No incentives were offered/given
10. Transcribers	<ul style="list-style-type: none"> One of the support staff at UoN who is trained in transcribing research data transcribed the data collected. The participants were given the opportunity to read their transcript,



	but this was optional (see consent form- appendix 2B, p.276) and all but a couple did not want to a copy of their transcript
11. Consent	<ul style="list-style-type: none"> • Written informed consent was sought and gained from participants in keeping with BERA (2011) and UoN research ethics guidelines (appendices 2A and 2B)
12. Confidentiality and anonymity	<ul style="list-style-type: none"> • Please see chapter 2, section 2.3.8, p.66 • Codes were used as explained in point 5 of consent form (Appendix 2B) • Also personal contact details will be destroyed at the end of the research process. • Data used in any future publications will also be anonymized • Any data collected is for the purpose of this research only.
13. Issues arising from the activity	<ul style="list-style-type: none"> • The topic dyslexia is sensitive but one did not envisage or encounter any emotional disturbance during the interview. However, if this had occurred one would have asked the participant to self-refer to student's services (counselling services) on UoN campus. • Participants were encouraged to discuss issues with their personal academic tutor and where necessary arrange to discuss issues with staff at UoN student services, where issues of wider concerns were uncovered by the research.
14. Feedback	<ul style="list-style-type: none"> • A summary of the research and contact details of research will be sent to each participant (This meant contact details of participants were obtained and kept confidentially to facilitate this process-but will be destroyed soon afterwards). • If there are likely to be matters raised which may trouble the participant, advice and assistance will be provided.



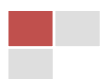
APPENDIX 3 Table 6b overview of the studies reviewed from nursing and midwifery and other health care fields

Overview of the studies (from nursing, midwifery/healthcare background) reviewed

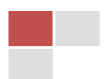
Authors	Title	Sampling /sample	Data collection & analysis	Findings
Watson, P. G. (1995). USA	Nursing students with disabilities. A survey of baccalaureate nursing programmes	247 programmes	Survey	<ul style="list-style-type: none"> • Learning disability –the most common disability disclosed –45% of the 247 admitted students with disabilities. the most prevalent is dyslexia • 53% reported use of a variety of strategies to determine the disabilities or special needs of applicant • Extensive array of special services provided for those with disabilities, 1-1 counselling, tutoring, advise, personal care, interpreter, calculator, books on tape, computer software, tape recorder, taped lectures, Classroom modifications-preferred seating, coloured chalk, black board telescope, special test taking situations Clinical modifications- lifting assistance, special patient assignment, vibrating pager, Equipment modification-magnified print, augmented stethoscope, Doppler sphygmomanometer • Students with Learning disabilities included in those who used above services • High student satisfaction level
Riddick B. Sterling C Farmer M Morgan S (1999) Comparative study	Self-esteem and anxiety in the educational histories of adult dyslexic students. (University students but it does not say if any were nursing students)	16 dyslexic students and 16 non-dyslexic students (control group)	<p>1. Culture free self-esteem inventory was used to measure self-esteem.</p> <p>2. Also Anxiety measured using State –trait Anxiety inventory</p> <p>3. Questionnaire used to gather info on past and present educational histories (included 5 points scale questions)</p>	<p>1. Dyslexic students found to have significantly lower self-esteem than those in control group.</p> <p>2. No significance difference between the two groups for anxiety traits.</p> <p>3. Dyslexic students rated themselves more anxious and less competent in their written work and academic achievement in the 5-point scale questions than those in the control group</p>
Illingworth K (2005)	The effects of being dyslexic on the work of nurses and health care assistants	1 health care assistants 5 Nurses	<p>Face to face semi-structured open-ended questions interviews</p> <p>6 of which were tape recorded/and transcribed but one was hand written</p> <p>QRS 6 used to analyse data</p>	<ul style="list-style-type: none"> • <u>Challenges included:</u> taking phone messages • Forgetful/Remembering names • Writing patients records • Completing forms • Difficulty with spelling • Working under pressure could exacerbate the situation • Slow at performing tasks • Reading especially medication names • Drug calculation (for 1 Nurse) • Lack of knowledge/awareness about dyslexia; bad attitude towards dyslexics • Disclosure issues/selective • <u>Strategies developed/used</u> • List of phrases kept and appropriate phrase selected and used for the appropriate patient, and/or for things that had happened during the day • Checked spelling with patient because they won't judge me. • Double check • Repeat names of drug many times



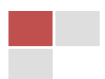
<p>Kolanko K. M. (2003)</p> <p>Collective case study (USA)</p>	<p>A collective case study of nursing students with learning disabilities.</p>	<p>Network sampling 6 women and 1 man with LD + documents e.g. Reports of LD evaluations, test scores, transcripts care plans etc.</p>	<p>Audio-taped open-ended interviews</p> <p>Peer debriefing, audit trail, field notes.</p> <p>Document analysis</p> <p>Analysed for themes-cross case analysis</p>	<ul style="list-style-type: none"> • Reading disabilities, completing assignments • Difficulty with maths • Struggle e.g. lack of confidence, <u>poor memory</u>, anxiety, lack of acceptance • Learning how to learn with LD • Problems with time-more needed • Problems with social support • Personal stories • Difficulty adapting to change • All preferred kinesthetic/tactile learning styles. Some preferred visual +kinesthetic styles of learning • Disclosure was difficult
<p>Ryan and Brown (2005)</p> <p>Australia</p> <p>Ryan (2007)</p> <p>Australia</p>	<p>Just for them to understand better: The impact of learning difficulties at University</p>	<p>8 university students with learning difficulties</p> <p>8 university students with learning difficulties</p>	<p>Semi-structured Interviews</p>	<ul style="list-style-type: none"> • Difficulty writing essays, spelling, reading, concentration, understanding lectures, participating in tutorial or seminar discussions. • There was less tolerance for people with disabilities • Felt less supported at university • Creative, good verbal (oral) communication skills • Self-doubt/lack of confidence • Felt embarrassed, guilty or regretful for asking for accommodations • Provided with lap-top • Lack of acceptance and understanding by lecturers
<p>McCandless F. Sanderson-Mann J. Wharrad (2006)</p> <p>Comparative</p>	<p>DysPEL: Dyslexia and Practice Environment Learning in Nursing.</p>	<p>9 dyslexic students 7 nurse educators</p> <p>-----</p> <p>71 dyslexic and 71 non-dyslexic students sent questionnaire with 75% response rate</p>	<p>Face to Face interviewed</p> <p>-----</p> <p>Questionnaire</p>	<ul style="list-style-type: none"> • Difficulties re documentation • carrying out observations, handovers, • drug administration <p>-----</p> <ul style="list-style-type: none"> • Dyslexic students more difficulty with using patients notes and care plans than non-dyslexic students • <u>Dyslexic students less likely to ask for help if they did not understand something.</u> • Dyslexic students more likely to disclose of disability to mentor than to any other member of staff on their placement. • Numerous challenges and no one solution to the challenges faced by the students
<p>Morris D. Turnbull B. N. (2006)</p> <p>Qualitative explorative</p>	<p>Issues and innovations in Nursing Education. Clinical experiences of students with dyslexia</p>	<p>Convenience sample 18 nursing students with formal diagnosis of dyslexia</p>	<p>Tape recorded interviews</p> <p>Thematic analysis</p>	<ul style="list-style-type: none"> • Some contended with discrimination & ridicule so did not disclose • <u>Had developed self-managing strategies</u> e.g. reminder pad or voice recorder for recall of information due to communication difficulties • Less acute practice areas found more satisfying working place. Risk of medication errors • <u>More time</u> & undisturbed areas to complete work required. Heightened awareness promoted patients' safety. • Emotional impact • Positive aspects of dyslexia never raised or acknowledged by participants <p><u>During discussion mentioned points below</u></p> <p>Recall skills, drug recognition and calculation and documentation were areas of most concern</p> <ul style="list-style-type: none"> • Communication/reading difficulties • Problem with eye-hand coordination and manual dexterity



Price G. & Gale A. (2006) <u>Comparative Qualitative Empirical Phenomenology</u>	How do dyslexic nursing students cope with clinical practice placement? The impact of the dyslexic profile on the clinical practice of dyslexic nursing student:	Convenience sample 10 <u>nursing students</u> with dyslexia and control group of 10 <u>non-dyslexic nursing students</u>	Focus groups interviews/ comparative thematic /interpretive analysis	<ul style="list-style-type: none"> • Difficulty with literacy, documents completion, taking notes at speed, • Difficulty managing the phone • Word recognition, poor spelling • <u>Organisational skill problems</u> • Safety issues/steps to avoid mistakes • Safety conscious as opposed to the non-dyslexics who never mentioned safety • Disclosure issues, confidentiality, self-esteem, anxiety • Slow at writing • Some charts difficult to understand and/or complete • Handover time and prioritising proved challenging • Self-awareness • Compensatory strategies/coping • Coloured pens and coloured stickers to assist in managing diverse tasks and to ensure important points will not be forgotten • Divide work into manageable chunks • Pre-reading prior to attending a placement • Arrive early, read and take notes on patients' names and diagnosis to minimise writing during handover. • Avoidance (with drug admin by one student in final year) • All but one student disclosed on every placement –upon disclosure, students found it easier to ask for help, seek advice re spelling and to check they had completed all tasks required of them
Morris D. K. and Turnbull P. A. (2007)	The disclosure of dyslexia in clinical practice: experiences of student nurses in the United Kingdom	Convenience sample 18 nursing students	Audio tape-recorded Individual in-depth interviews Thematic analysis using colour coding	<ul style="list-style-type: none"> • 6 participants concealed their disability • 12 disclosed but reported some degree of difficulty or reticence • <u>Longer placement supported the likelihood of disclosure</u> • If mentor is perceived as empathic and receptive, student likely to disclose • Lack of disclosure where mentor described as patronising, overly critical, or lacked insight. • Confidentiality not always maintained after disclosure in practice so was emotionally traumatic at times. • <u>Repeated exposure to a clinical situation may enhance confidence</u>
White J. (2007) Qualitative case study method	Supporting nursing students with dyslexia in clinical practice	7 students, 3 support workers, 8 Teaching staff (interviews) 9 mentors questionnaires + review of policy documents <hr/> 4 students ,7 mentors	Semi-structure interviews + postal questionnaire stage 1 Stage 2 semi-structured interviews	<ul style="list-style-type: none"> • Dealing with information, terminology • Slow at reading, writing, so handovers, record keeping difficult • difficulty pronouncing • <u>unfamiliar words</u>, had <u>untidy childlike handwriting</u> • Performing the role, Short term memory • managing and prioritising workload • Drug admin- reading spelling, pronouncing drug names on charts, Drs handwriting • Calculation difficulties for those with dyscalculia • Stressful environment made student less able to cope with dyslexia • <u>Coping strategies</u>: spell check device; vigilant, double check; check letter by letter if in doubt, ask for help; BNF, dictionaries • Learn and practice new words • Coloured paper/overlays or tinted glasses • Rehearsed what to say at handover



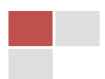
				<ul style="list-style-type: none"> • At handover, concentrate on important aspects of patient care • Wrote things down • Minimal writing- • Printed handover sheets with list of patients to be cared for on that shift • Shorthand and symbols • Find quiet spot to complete notes • Work with small number of patients with clear protocol and structure • Placed pictures of patients on drug chart to help with identification • All students found laptops invaluable but successful use of handheld technology devices were limited as staff were concerned for the safety of their use so were resistant
Crouch A. T. (2008) Qualitative Grounded theory	Needs /experiences of dyslexic students + support in clinical practice.	Convenience but purposive sample 16 student nurses/ midwives with dyslexia + 3 mentors	Face to face tape recorded interview + one telephone recorded interviews. Constant comparative method + NViVo 6	<ul style="list-style-type: none"> • Forgetfulness • Difficulty with literacy, grammar, spelling, words, reading and writing slowly, difficulty with pronunciation, word recognition, word and number switching, some documentation errors • Slow at doing things/task • Some had problem with maths • Disclosure issues • Low self-esteem/ Lack of confidence • <u>Difficult dealing with more than one task at a time /new information avoidance</u> • Safety conscious/ coping strategies • Mentor support
Hargreaves <i>et al.</i> , 2009 Mixed method Evaluative questionnaire / Phenomenology	Making the transition: disabled students in Higher Education Aimed to evaluate the perceived satisfaction with level of support received by disabled students	50 students with disabilities	Questionnaires SPSS and factor analysis of answers to questionnaire 8 of the sample- face to face tape recorded interviews semi structured Template analysis	<ul style="list-style-type: none"> • Mostly happy with the support received from their school but in some cases, there were mixed views' • Others were negative but none of the differences between findings were statistically significant • <u>Some felt comfortable disclosing</u>, but others were not comfortable doing so
Crouch A. (2010) Comparative Grounded theory approach)	Experiences of non-dyslexic and dyslexic nursing and midwifery students: how best can their needs be met by Personal Academic Tutor support?	7 dyslexic and 15 non-dyslexic nursing and midwifery students	Semi-structured tape-recorded face to face interviews. Transcribed verbatim. NViVo 8 used to analyse.	<ul style="list-style-type: none"> • Both groups reported of difficulty in writing but for different reasons • Non-dyslexic (<u>Academic/professional needs</u>)– misunderstanding of assignment questions led to difficulty in writing/ • Knowledge, progress to achieve required standards. • <u>Dyslexics (Academic and professional needs)</u>– poor spelling and grammar, slow processing speed • Forgetfulness • Slow at doing things • Problem with maths and with drug calculation • Coping strategies



Dearnley, Elliot and Hargreaves <i>et al.</i> , (2010) Case study 1	Disabled People, Effective Practitioners: Enabling a Health Care Workforce that better Reflects Society	50 students with disabilities	Self-completed Likert Scale questionnaire + 3 face to face semi-structured interviews	<ul style="list-style-type: none"> Students felt well supported however, Gap between arriving HE setting and getting support Some started HE with undiagnosed disability e.g. dyslexia Unintentional barriers e.g. relentless paper work for disability support and unsympathetic teaching methods made coping difficult. Non-disclosure issues when in practice areas Reasons for non-disclosure included- Concerns that employment opportunities may be jeopardised and perceived ambivalence towards health professionals with disabilities
Case study 3	Mobile enabled disabled students (MEDS)	12 students during Stage 1 8 students during stage 2 5 students 5 students (stage 2 students were on health and social care courses)	Focus group Bloggs & diaries Focus group Microsoft desirability tool	<ul style="list-style-type: none"> Aided memory functions by relying on diaries, alarm systems, audio and camera functions. Other useful aspects of device were spell check, and calculator Those with dyslexia found it as an aid memoire, and useful for organising and for spell checking Liked mobility of laptop/size in the home but was too heavy to take into class.
Child J. and Langford E (2011) comparative Qualitative Phenomenology	Exploring the learning experiences of nursing students with dyslexia	Convenience but purposive sample 6 nursing students with dyslexia and 6 without	Tape recorded semi-structured interviews Thematic analysis	<ul style="list-style-type: none"> Difficulty with literacy spelling, pronouncing words Short term memory Need more time Confidence issues Discrimination on disclosure e.g. judgemental attitudes Lack of understanding of dyslexia Mentors and staff need more information on dyslexia p42
Murphy F. (2011) Comparative	On being dyslexic: Student radiographers' perspectives	14 dyslexic student radiographers 23 non-dyslexic students	Questionnaire- to select from a Likert scale (1-5) 1= task very difficult 5=tasks very easy In-depth interviews of 10 –semi-structured audiotaped using digital recorder (* were dyslexic) Thematic approach used to analyse data	<ul style="list-style-type: none"> No notable difference in performing tasks between dyslexic and non-dyslexic students (not a measure of actual abilities except for very small differences between reading request/reports, differentiating between left and right, and time management. (Raw data) <u>Qualitative data – dyslexic students</u> Difficulty with reading e.g. to pronounce words, words jump around etc., so avoided reading out loud. Difficulty writing, poor spelling Self-awareness Hypervigilant e.g. double check Avoided answering the phone Slow at performing tasks so time needed but any extra time should be given to all irrespective of any disability <u>Unique strengths-</u> felt they could understand equipment quicker than others. Also, good organisational skills, taking responsibility and developing coping mechanisms to overcome any difficulties. Above average spatial awareness and easy to identify things as visual learner, Creative minds
Ridley C (2011) Qualitative	The experiences of nursing students with dyslexia	7 students formally diagnosed with dyslexia	Semi-structured interviews/ thematic network approach to analyse	<ul style="list-style-type: none"> Problems with reading and writing Number confusion Takes steps to avoid making mistakes Disclosure at university ok but challenging to do so in practice Differently able, not disabled Low self esteem



				<p>dyspraxia.</p> <ul style="list-style-type: none"> • 45% believed they had difficulty sustaining focus
Hargreaves et al (2014)	The preparation and practice of disabled healthcare practitioners: exploring the issues	9 disabled students 6 disabled practitioners 96 qualified healthcare staff (Nurses, midwives, doctors and other allied health professionals (20%) declared themselves as disabled	<p>Semi-structured interviews</p> <p>Bristol on Line questionnaire</p> <p>Thematic and iterative analysis</p>	<ul style="list-style-type: none"> • Over 95% -thought there was prejudice against the disabled • Some were aware they of having contact with disabled students. 55% felt confident for dealing with disabled students most of the time. 23% felt confident occasionally or never • 68% did not know enough about disability. Only 4% said this was never an issue. • 54% sometimes did not know enough about communication needs of the disabled • Supporting disabled students was a source of concern • Express of concern re fitness to practise both disabled and non-disabled students • Many were concerned that reasonable adjustment for disabled students undermine the assessment of fitness to practise • Some were confident about safe guards to ensure fitness to practise • Disclosure issues for students –fear of being treated differently • Some did selective disclosure • Adjustment made in academic setting may not be possible in practice setting • Difficulty with writing • Difficulty with numbers • Patient comes first- care may be compromised-disabled staff are less able or increase other's workload
Ikematsu Y, Mizutaani M, Tozaka H, Mori S, Egawa K, Endo M. Yokouchi M. (2014) JAPAN	Nursing students with special educational needs in Japan	341 were legible for analysis Inclusive of <u>146 with special needs</u>	Survey Questionnaire	<p>330 of 14, 325 students reported as extremely difficult students</p> <p><u>146</u> students identified as having one or more special needs e.g. listening, speaking, reading, writing, mathematics, reasoning, inattentiveness, hyperactive/impulsive, social interaction, restricted interests</p> <p>Difficulty with patient care at clinical practicum, communication with patient and families at clinical practicum, group work, skills lab, paper and pencil test, classroom lecture, research, interaction with teachers and/or clinical instructors</p> <p>34 (23.4% graduated, 46 (31.7%) withdrawn, 52 (35%) extended term, and 13 (8.7%) unknown</p>
Newlands F. Shrewsbury D. and Robson J. (2015) Constructivist Grounded theory	Foundation doctors and dyslexia: a qualitative study of their experiences and coping strategies	7 foundation year doctors (medical students) with dyslexia	Semi-structured telephone interviews were	<ul style="list-style-type: none"> • All forms of communication difficulties e.g. note taking during ward rounds, completing pats notes, charts, spelling, prescriptions, • Reading out loud, taking phones, presenting: Slow • Number- reversal of digits (but on computer) CHI numbers on blood transfusion bottles • Time management /slow • Recalling specific patients • Anxiety –performance anxiety • Concerns about disclosure • <u>Coping strategies used:</u> • safe-netting and planning- double check/ask peers for help, plan well ahead • organise work, • prioritise • allow extra time • Technology e.g. spell checker,



				<p>Dictaphone, calculator, barcode reader, smart tablet phones, search engines</p> <ul style="list-style-type: none"> • <u>Disclosure issues</u>- fear of differential treatment, shame, embarrassment, disclosing means not alone,
<p>Nolan <i>et al</i>, (2014)</p> <p>Quantitative/ Survey</p>	<p>HE students registered with disability services and practice educators: issues and concerns for professional placements</p>	<p>63 students with disabilities in Education, Social work, dentistry, medicine, Occu Therapy, nursing, dentist, physiotherapy, radiation therapy, and deaf studies</p> <p>29% of them had Specific Learning Difficulties</p> <p>68 practice educators</p>	<p>Survey monkey using forced choice questions and Likert scales and opportunity to comment questions.</p>	<p><u>From Students</u></p> <ul style="list-style-type: none"> • Some disclosed/others did not due to stigma Disclosure seen as mechanism for getting right support and only 51.6% of those who disclosed thought it was beneficial to them • Factors that encouraged disclosure were supportive staff, available support, reduced fear, discrimination or stigma, assurance of confidentiality and discretion were important factors. • 30 requested reasonable adjustments but 20 of them did not receive any or did so sporadically • Only 20% of the students had disclosed prior to attending placement • They expected appropriate information about them to be sent to placement • %4% had opportunity to prepare for placement with dept./school staff • Majority said they did not have opportunity to discuss their needs with practice education staff prior to placement <p><u>From practice Educators</u></p> <ul style="list-style-type: none"> • Some students disclosed to them, others did not therefore unable to give appropriate support • Some were concerned about students reaching the standard of competency (about passing the grades), • Whether or not student is able to do the job was a significant concern for practice educators • Dyslexia and level /standard of writing e.g. for court/ hand writing can be difficult to read • Students ability to complete placement successfully • Safety in practice for patients • Health and safety in the workplace • Adequacy of the level of support they were providing -The appropriate support that team provided, emergency issues when a disability was not disclosed on placement- need more specific guidelines



Appendix 4: Neuro-Linguistic Program Anchoring

The use of Neuro-linguistic program anchoring (NLPA- Carey *et al.*, 2010; Elston, 2012) to help recall of information by one student nurse was also of particular interest (Sec 4.2.3). The Neuro-Linguistic Programing (NLP) was first developed and used in the field of psychology in California (USA) by Bandler and Grinder (1979; Tosey, Mathison and Michelli, 2005; Bandler, Roberti and Fitzpatrick, 2013) as 'a method of identifying effective aspects of the different models of communication' that existed at the time of its development (Tosey, Mathison and Michelli, 2005, p.144). It has since then been used in other settings including businesses such as Hewlett-Packard and McDonalds and in schools worldwide including those in the USA (Singer and Lalich, 1996), UK (Tosey and Mathison, 2003; Carey *et al.*, 2010), Poland (Witkowski, 2010), and in Iran (Lashkarian and Sayadian, 2015) and in coaching (Carey *et al.*, 2010), with the intention of improving performance of individuals. Its use on the US army to improve performance, however, failed (Swets and Bjork, 1990) is also a recognized as a form of psychotherapy in the UK (Tosey, Mathison and Michelli, 2005) and which leaves questions as to why it is allowed to be used in the education sector on school children and more recently in further and higher education.

It has nevertheless been shown to be effective in teaching English as a foreign language by Lashkarian and Sayadian (2015, p. 511) who also suggest that there are three main NLP techniques namely, 'reframing, anchoring, and creation of rapport, that can be applied to facilitate learning' and they advocate that their effective use enhances communication and between the learner and the teacher, resulting in academic effectiveness. In the current study, it is the anchoring technique that was applied by the student in question so will be defined briefly. According to Elston (2012), anchoring in neuro-linguistic programming is described as the 'process by which a gesture, touch or sound' is applied 'at the peak of a state, either in oneself or someone else'. Anchoring is said to be similar to the 'conditioning technique used by Pavlov to create a link between the hearing of the bell ringing and salivation in dogs' (Dilts, 1999, p.1). In one's own study, the dyslexic student nurse reported that s/he used gestures such as touching the shoulder, crossing fingers or other gestures to remind her/him of steps in procedures such as giving an injection, peg feeding, or aseptic technique, for example and which s/he claimed were very effective, hence helpful (Sec 4.2.3). This is line with the above definitions and with the explanation of Neuro-Linguistic Programing Anchoring (NLPA) as the process by which memory recall or other responses can be associated with some stimuli such as a gesture, touch and/or sound (Carey *et al.*, 2010; Bandler, Roberti and Fitzpatrick, 2013). However, the researcher who has no training in relation to NLPA observed the dyslexic student demonstrating this in a simulated situation only during the one to one face to face interview and not in real life.



Although seemed useful and might be employed to help other dyslexic students, it is unclear how this could be safely applied during a sterile and an invasive procedure. The student will have to think about and apply other forms of stimuli in such procedures to ensure safety.

As already mentioned, NLP seems to be in use in other fields and is becoming popular in the education system although its use in the UK education system it's relatively new and the first research paper on it in relation to its use with school children (from nursery to year 13) was published only recently by Carey *et al.*, (2010). Carey *et al.*'s (2010) project report suggests that the teachers who conducted the research were taught ten different techniques in relation to NLPA, including anchoring. This contrasts with Lashkarian and Sayadian's (2015) idea that there are only three main techniques. In Carey *et al.*'s (2010) study, however, each teacher chose which technique they wished to research on some of whom chose anchoring in that project, used 'the same piece of music to indicate the time for tiding up'; the findings of which suggest that anchoring in NLPA was effective in assisting the recall of what action was expected of the children on hearing the music (Carey *et al.*, 2010, p.20). Although a different mode (music) was used as an anchor, their findings seem to be in line with that of the student in this study. Carey *et al.*'s (2010) research, was however, not related to nursing activities and it was the first of its kind. It is also unclear if the teachers obtained informed consent from the children and/or from their parents. The teachers also started to conduct the research only after a couple of days training in the use of NLPA and according to Carey *et al.*, (2010), the researchers were in many ways acting and the research related to school children rather than to adults in higher education. In order to confirm the effectiveness of their use, more research on the NLPA in education is needed, using appropriately trained teachers.

Reference to the use of NLP in relation to dyslexics was very limited. There was for instance a reference to its use as a form of counselling in Bull's study (2009). However, in Bull's study, only four out of the 148 dyslexic children with special education needs were said to have used counseling either in the form of biofeedback, hypnotherapy or NLP and the report does not specify the actual number that used NLP and/or what type of NLP techniques were used as part of their treatment in Complementary and Alternative Medicine (CAM) unit. There was also no reference to its effectiveness as it was not the aim or objective of the study.

Goodman (2006) also reported on Kerrigan's belief that she could help overcome physiological symptoms of dyslexia if she could influence changes in neurology using her coaching technique. Kerrigan had developed and used a combination of NLP techniques and the phonic methods of teaching children to read, write and spell which according to



Goodman (2006) seem to have been successful in helping dyslexic children, although there do not appear to be any research paper on this. In an advertisement, however, Hickmott, (2011) also suggests that NLP coaches are ideal for helping people improve poor literacy and numeracy and reduce dyslexia. Hickmott (2011) claimed to have trained over a thousand people in the UK, USA, Europe and Singapore in the use of NLP and they have used NLP to help thousands of people with literacy and numeracy problem, including those with dyslexia internationally. There were however only two testimonies on her website regarding same and their paper as well as the information on her website were not based on research findings. Although appears to be effective, the methods used should be made very explicit and additional studies are required to support the claims of those authors. Moreover, the methods used were with children and it is not clear if they will work on adults with dyslexia. Apart from that, the reports from Goodman (2006) and from Hickmott (2011) both related to assistance with literacy rather than to carrying out a nursing task.

Another reference relates to the use of NLP in seven children with special education needs (Kudliskis, 2013, p.86) with 'visualization techniques and specific usage of language associated with the representational systems identified in the Neuro-Linguistic Programing', 'to help alter their negative state to a positive state'. It showed that five of the children took less time to settle in class. The research, although received ethic approval from research committees and SEN Coordinator, there was no mention of consent being sought from the children or from their parents. In comparative research, using the Meta-model and reframing techniques of NLP, Kudliskis (2014, p.251) also reported that although there was no statistical difference between average pre-intervention scores, qualitative data suggest that the use of those specific elements of NLP may be helpful. Informed consent was sought from ethic committees and from the parent. However, it was not clear if consent was sought from the children. Although their results suggest that NLP might be useful in the education of children with special needs, the techniques of NLP used in both studies were different to those of anchoring.

Tosey and Mathison (2010), advocate that anchoring in NLPA could be used by lectures in the higher education sector to enhance confidence and capability in a chosen setting although there is no evidence in support of this. Moreover, not all researchers or authors seem to be advocates of NLP. According to Davies (2010), for example, there is no credible scientific basis for NLP in neuroscience. This in line with verdicts from Einspruch and Forman (1985) who reviewed 39 studies, and with those of Sharpley (1987) following analysis of 44 studies and those of Witkowski (2010) who also reviewed 63 research articles on NLP all of whom concluded that there were methodological errors and little knowledge of the theoretical underpinnings of NLP. Although NLP has been discredited by experts (Norcross, Koocher and Garofalo, 2006), its use seems to have gained popularity



(Tosey and Mathison, 2010). There is also little evidence on how NLPA is applied in practice and the teachers and lectures and indeed Higher education students will require adequate training on NLPA and how it could be applied prior to its use although this should be done with caution. Nevertheless, the use of NLPA by the dyslexic student in this study to assist with memory recall when carrying out procedures in clinical practice areas seems to be the first of its kind in nursing and midwifery education, hence, an addition to the body of knowledge on the research topic studied

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