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**Dyslexia – a Toolkit for Lecturers**

***A practical resource for lecturers to support their students with dyslexia.***

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# Introduction

This toolkit is a practical guide for lecturers in The Faculty of Health and Wellbeing who would like to develop a better understanding of approaches designed to facilitate the academic and personal development of students with dyslexia. It sets out to provide lecturers with an overview of dyslexia and offers examples of strategies developed to help dyslexic students to fulfil their academic potential . It provides resource sheets adapted from Krupska and Kein (1995) to be used by both lecturers and students. The relevant legislation with regard to specific learning needs is The Equality Act 2010.

**The rationale for selecting the specific learning difficulty , dyslexia.**

Dyslexia is ‘specific learning difference’ or ‘specific learning difficulty’ (SpLD). Goodwin and Thompson’s (2006:6) assertion that stating ‘dyslexia’, rather than SPLD, is a more familiar and positive a term to the ‘general population’ is supported. It is argued that this is important as a first strategy in understanding dyslexia: it is more common than many might believe. Figures suggested that between 4 per cent and 10 per cent of the population is dyslexic, although the incidence of dyslexia in those who work within the caring professions maybe even higher (Krupska and Klein, 1995; Royal College of Nursing (RCN), 2010). This suggests that individuals with dyslexia are drawn to the caring professions because particular strengths which are typically associated with dyslexia, such as empathy, intuition, determination, a positive work ethic, together with the ability to think strategically in creative and original ways, are desirable qualities in the caring professions.

# What is dyslexia?

The term ‘dyslexia’ is derived from the Greek: ‘dys’ meaning hard or difficult and ‘lexia’ from the word ‘lexikos’ which means pertaining to words (Krupska and Klein, 1995).

**In a nutshell, dyslexia means difficulty with words - either seen, heard, spoken or felt as in writing.**

Historically, dyslexia was originally a medical term referring primarily to a disorder in reading and spelling due to some form of neurological dysfunction. Krupska and Klein (1995) state that the concept of dyslexia has been known for at least 100 years; it was first identified as ‘word blindness’ where there was no identifiable neurological damage or other explanation for the inability to learn to read. The left hemisphere of the brain is the part that controls language-this was found in original neurological research to account for spoken and written deficits in patients who suffered strokes: these findings are confirmed with the use of current technology.



# Understanding Dyslexia

**CAUSES OF DYSLEXIA**

There are no clear agreements about the causes of dyslexia: but there are many useful perspectives for understanding dyslexia. These are:-

* Educational
* Cognitive
* Neurological
* Developmental

**CONSEQUENCES OF DYSLEXIA FOR THE INDIVIDUAL**

Dyslexia is most usefully seen as a difficulty with **automatic language processing**, which affects the following skills:

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Reading Writing

![C:\Users\ap239\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\1XF6C3MM\brain_memory[1].jpg]()

And a difference in cognitive style which affects:

Learning, Organisation & Memory

It is important to be mindful that there may be **social and emotional consequences** that can contribute to the problems and experiences of the dyslexic person. This means that dyslexic learners need to employ different, and often more personally meaningful, strategies in order to learn language - based skills. This is important for lectures and teachers to understand as such students often cause concern because they might fail to acquire written language skills through ordinary learning and teaching methods failing to progress or to succeed in examinations. Many drop out of education altogether. It is also important to note that in educational and work situations they often receive feedback which draws attention to their poor literacy skills and they may be discouraged from taking courses or jobs until they improve these. Consequently they may be ‘denied opportunities to develop their strengths, so their talents and abilities are lost to them and us’ (Krupska and Klein 1995:5).

**HOW MANY PEOPLE HAVE DYSLEXIA?**

Whilst estimates of the incidence of dyslexia range from 4 per cent to 10 per cent of the population – in further education there are more likely to be a higher proportion of students who are dyslexic because they failed at school or dropped out; many dyslexic students are concentrated in practical based course/programmes as adult learners (Krupsska and Klein 1995)). This would seem to correlate with nursing as stated by the RCN (2010) who argue the compassionate attributes of dyslexic people attract them to the caring professions such as nursing.

The ‘syndrome’ of dyslexia is a subtle and complex syndrome not easily defined (Krupska and Klein 19995). Despite the complexity of dyslexia, it is important that lecturers approach the issue in a positive way. An important part of a positive approach is to recognise, in unison with students, their difficulties (which maybe unique) as well as seeking out their talents and gifts to facilitates an opportunity to reach their full potential.

# The Journey of Dyslexia

* **Childhood**

A major difficulty surrounding the diagnosis of dyslexia according to Snowling (1996) is that its definition has been contested; she cites Stanovich (1994) who explored the question ‘does dyslexia exist?’. In 1968, The World Federation of Neurology recommended that the term should be applied to children who fail to read despite adequate intelligence, conventional instruction and sociocultural opportunity’ (Snowling 1994). However, this medical model definition has been rejected as it is narrow and fails to take into account the positive signs of dyslexia. Instead in clinical practice, the majority of practitioners have adopted a ‘discrepancy ‘definition of dyslexia ( Snowling 2:1994).

The discrepancy definition takes into account that there is significant correlation between cognitive ability and educational achievement in the normal population .It is reasonable to expect children of above –average cognitive ability to be reading above the average for their age group, and children of below-average cognitive ability to be below the norm(Snowling).Children who are reading significantly below the expected level and have unexpected reading difficulties but who also have high cognitive ability will have the characterisitics of the Specific Learning Difficulties: dyslexia. Most practitioners argues Snowling feel comfortable with the discrepancy definition of dyslexia ,’at least as a starting point for their investigation’(1994: 2)into strategies for reading and spelling improvements as well as the cognitive processing skills of an affected individual.

She states that the layperson’s view of dyslexia is that of a creative person who is good at most things except reading and writing .However, not all children are like this- children might have reading difficulties irrespective of their talents.

This toolkit intends to be a resource for lecturers to support their adult students with dyslexia. Snowling argues that dyslexia is a lifetime difficulty. Particular deficits will be compensated for over time in adulthood. Adult dyslexics may become fluent readers if poor spellers- typically adult dyslexics have difficulty decoding words they have not encountered before and persistent difficulties with phonological awareness, naming at speed and verbal short-term memory tasks.

Dyslexia is heritable- there is a 50 per cent probability of a boy becoming dyslexic if his father and is 40 per cent if his mother is – it is lower for girls (Snowling). An aspect of language processing rather than reading disability is inherited. Results of large-scale twin studies suggest there is greater heritability of phonic (phonological) than visual aspects of reading. Phonological reading skills share heritable variance with phonological awareness, the ability to reflect upon the sound structure of words .Dyslexic children it is suggested in studies of speech perception and speech production have difficulty with the perception of brief auditory cues and language processing. Learning to read in an alphabetical script such as English requires an appreciation of the correspondence between letters and sounds-the alphabetic principle (Snowling).Children need to learn how the letters in printed words map on to the sounds of spoken words if they are to become flexible readers. The first step in this process according to Snowling is the ability to reflect upon speech ‘phonogical awareness’. Thus if dyslexic children have difficulties in the phonological domain they are at a disadvantage from the start. Dyslexic children often rely on a sight vocabulary in reading and therefore make a large number of visual reading errors.

It is not the intention of this Toolkit to explore further children’s experience of dyslexic; rather the brief explanation of the difficulties children face with speech and language development which continues to present challenges to them in adulthood may illuminate the particular learning needs of dyslexic adult students.

* **Adults with Dyslexia in Higher Education Institutions (HEIs)**

Many of these challenges may not become apparent until an adult enters into HEI to undertake a Programme such as nursing. As nursing has evolved into an academic programme and is now a graduate entry profession, these challenges will in turn provide the need for lecturers to be empathetic as well as effective in providing appropriate academic support . This toolkit is one way that lecturers may seek support themselves to support their students with dyslexia.

The RCN (2010) state that as a condition dyslexia has been defined in many different ways as knowledge and understanding of its complexity develops. The RCN choose to employ the definition of dyslexia by Peer (2002) used by the British Dyslexia Association:

**“A combination of abilities and difficulties which affect the learning process in one or more of reading, spelling and writing. Accompanying weaknesses maybe identified in areas of speed of processing, short term memory, sequencing, and/or visual perception, spoken language and motor skills”**

(Peer 2002; cited in RCN 2010: 11).

The Open University (2006) are clear that dyslexia brings difficulties but also strengths and talents: no two people experience dyslexia in the same way, it lies at the root of a wide range of learning strengths and difficulties and it includes ‘ a set of distinctive talents which can be explained by neurological differences’ (2006: 6).

Recent investigations into how the brain works have shown that the dyslexic brain processes some information in a different way to the brains of non-dyslexics, giving clear advantages in some cognitive and creative areas although also creating some difficulties. The ‘dyslexic brain’ (2006: 6) tackles some tasks better because the right hemisphere (responsible for creativity) appears to be more developed than the left which is mainly responsible for acquiring knowledge.

Dyslexia affects language processing, short term memory and the retrieval of information. The Open University (2006:6) make a very useful point for lecturers in their role as the facilitators of learning:

**“Difficulties arise because dyslexic people have to operate in a world in which communication has developed in ways that suit the non-dyslexic majority. Now that we know this, it is more acceptable to ‘identify’ rather than to ‘diagnose’ dyslexia”**

* **Dyslexia: a pattern of difficulties**

Krupska and Klein (1995) state that in order to understand and explain what dyslexia **is**, it may be useful to state what it is **not**:

* ![C:\Users\ap239\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\1XF6C3MM\PngMedium-X-sign-incorrect-wrong-error-15610[1].gif]()A result of low intelligence
* Related to class or ethnic origin
* A result of poor eyesight or hearing
* A result of an emotional problem
* An impediment to a possible academic career
* A middle class excuse for poor academic attainment
* A mental handicap
* An excuse to get preferential treatment or employment
* Only a difficulty with reading or spelling

And that it is preferable to use the term ‘dyslexic’ as this is what dyslexic people prefer rather than the term ‘specific learning difficulties’ as this term is generally only used by educational psychologists and teachers of special needs. Others may find the term specific learning needs meaningless or confuse it with general or moderate learning difficulties which lead to dyslexic people being assumed to be of low intelligence or ability.

Over the past two decades a range of legislation has been passed addressing the needs of individuals with a recognised disability. It is important that that everyone working with a colleague who is dyslexic or who is dyslexic themselves is fully aware of their legal responsibilities.

* **Characteristics of adults with dyslexia**

***Individual profiles of strengths and areas of difficulties***

No one person will necessarily experience all the difficulties that maybe associated with dyslexia (Krupska and Klein, 1995; Snowling, 1996; Open University, 2006; RCN, 2010)and each person will have their own **individual personal profile** of strengths and areas of difficulty. About 1 person in 10 of the general population has problems with spellings but some people, about 1 in 25, experience difficulties that have a moderate to serious effect on their whole lives. These people are unlikely to achieve their full potential without compensating strategies and receive appropriate support and encouragement (Open University, 2006).

It is useful to share with students some of the positive attributes of dyslexia with adult students (and children) as a starting point to positive consciousness raising in both students and lecturers alike. Many students who have struggled at school enter HEI with little or no confidence in their academic abilities. They often believe they are not clever enough to be in HEI and doubt their ability or legitimacy perhaps as a result of poor experiences in school.In fact some adults may not know they are dyslexic until they come into HEI and are either routinely screened for dyslexia or are referred to student support for specialist assistance.. Once in contact with experts, they may be referred to an educational psychologist for assessment and it can be a shock for adults to learn they are dyslexic, as often they have coped with learning difficulties and worked harder that most to get to where they are.

**Another characteristic of dyslexic students: the skill to be creative in successfully navigating within schools and tertiary education, despite learning difficulties.**

It is important to focus on the positive aspects of dyslexia and talents –theories of learning that focus on positive regard in adult learning as well as the cognitive approaches to learning are usefully applied to underpin this positive approach to adult learning. Knowles’ androgogy model to teaching adults clearly supports an approach which embraces dyslexia talents rather than emphasising weaknesses.

 It is useful to share a list of notable people with dyslexia as an illustration of achievement.

**18 Positive Attributes of Dyslexia**

1. Curiosity
2. Strong imagination
3. Easily grasp new concepts
4. Surprising maturity
5. Enjoy solving puzzles
6. Talent at building models
7. Excellent comprehension of stories read or told to them
8. Strong reasoning skills
9. Understand abstract idea
10. Learning easier through meaning than memorising
11. Ability to see the ‘big picture’
12. The ability to read and understand highly-practiced words in an area of interest or expertise
13. Excellence in areas not dependent on reading such as maths, computers and visual arts, philosophy, biology, social studies and creative writing
14. Noticeable excellence when focused on a highly specialised area
15. Easily expressed ideas and feelings
16. Exceptional empathy and warmth and feelings for others
17. Easily adapted to new situations
18. Inclination to think out of the box
* Caring and empathetic
* Initiative
* Good strategic thinkers
* Good at problem solving
* Creative and original
* Determined and hard working
* Holistic thinkers

# Effects of Dyslexia

According to the Open University (2006:7), a compilation of effects would include the following list below. This list would be a useful activity to share with the adult learner/student:-some of the effects may be familiar to the student, others may create a ’lightbulb moment’ .It is important for the lecturer to be mindful that a student may remember how the experience of some of the effects either engendered teasing from others or negative feedback from those responsible for facilitating learning perhaps resulting in the de-motivation of learning. As Adair (2009) points out – good, positive motivation can create, maintain and improve performance-therefore the opposite may stifle growth and development. Learners with dyslexia are empathetic – but they are also sensitive to positive learning environments and are less likely to prosper in an environment that does not respond to their particular learning needs.

The Open University (2006) and Krupska and Klein (14-14:1995) suggest dyslexia is (amongst other things) a syndrome of difficulties which shows itself predominately in written language. Not all dyslexic people will experience difficulties in all the areas listed. Most may manifest only some of these signs: it is important to look for a PATTERN of difficulties. The term syndrome of difficulties describes a developmental pattern of learning which does not favour an easy acquisition of fluency in language, especially with the written word.

It is not a defect, but an individual difference in cognitive style, often associated with problems in sequencing, organising, time and direction.

**Indicators of dyslexia may include :**

* A marked discrepancy between ability and standard of work being produced. This perhaps the clearest ‘warning bell’ that a student may have difficulties with processing language.
* A discrepancy between evident intelligence and the ability to learn what appear to be simple language skills. Dyslexic people are often frustrated or embarrassed by their poor literacy and may drop out of courses which intellectually they are capable of or may refuse jobs which they could do well.
* A problem with word retrieval: individuals often know the word they want to use but ‘can’t get it out’.
* A problem with processing language quickly- individuals may be slow at taking in verbal information, and may lose track of what is being said.
* A difficulty with reading, which is likely to be slow, and comprehension (even advanced readers may have to re-read a text several times in order to gain comprehension)It is important to note the problems experienced vary according to the severity and type of the processing difficulty.
* Auditory processing difficulties- people with these processing difficulties cannot match sounds to words or letters. They may have problems discriminating or ‘holding ‘sounds. Writers with auditory processing difficulties often omit or confuse sounds within words or whole syllables. Those with severe dyslexia sometimes find it difficult to know how to even begin writing a word. Readers with such difficulties find it difficult to decode new words as they are unable to use a phonic attack as they cannot ‘sound out’ new words, they rely on sight vocabulary and context to work out words they do not know. They therefore read for meaning and their comprehension can be very good. However, they have great difficulty with words out of context or unfamiliar as in multiple choice tests. Their reading maybe very inexact if there are not enough words in a text they recognise or give them clues.
* Visual processing difficulties- individuals may have perfectly good sight but still have difficulty recognising when a word looks right or remembering the visual image of a word. They are likely to spell phonetically and find particular difficulty with irregular spelling or one where the sound doesn’t give a clear indication of how the word looks. They have difficulties with homonyms and often miss-sequence words e.g. witch form did you sign? (Which form did you sign?).A lot of attention goes into decoding words, so dyslexic readers may lose comprehension. They may also have difficulties with ‘tracking print’ and either omit words or whole lines in the text. Other difficulties with reading may include visual distractions from unstable print, print which jumps out of the page, ’halos’ around words, ’blurry’ letters,’ swirling ‘movements on the page which makes refocusing on the visual image of the word impossible. Reading is not only difficult but physically painful and extremely tiring. For example a student with dyslexia reported that :‘I see the hole in the ‘p’ but not the ‘p’ itself’(2006 :16).
* A problem with directionality. Most dyslexic people continue to confuse left and right-this has implications for recognising letters and reading. Sometimes, individuals transpose numbers or the time when reading a clock e.g. ‘10 to or 10 past’ ’bone’ or ‘done’ (2006: 17).
* Difficulties with short term visual memory which may include difficulties in retaining, recognising and reproducing symbols especially of printed language, directional confusion of letters or numbers or of sequences within words. The difficulties are with coding visual linguistic information and interpretation of general visual data. Infact, individuals with dyslexia often have excellent visual-spatial skills.
* Difficulties with short term auditory memory- including problems segmenting sounds and retaining sound sequences- these difficulties affect reading and spelling. A dyslexic individual may not have correct understanding of what is heard, or they may forget or confuse much of what is heard e.g. following instructions.
* Vocabulary and written expression-because of difficulties in storing and retrieving information, dyslexic students take longer to acquire new terminology-they need more examples and practice to thoroughly acquire new words.
* Note taking presents difficulties due to poor spelling, poor short term memory and sometimes difficulty taking in auditory information at a rapid pace. Dyslexic individuals are rarely automatic writers (2006: 23).
* Concentration, which tends to fluctuate.
* Spelling even with ‘easy’ words or common words, and grammar, which can be unorthodox.
* Motor integration maybe difficult- these shows in poor handwriting which is often untidy: irregular size or awkward shape of writing, poor spacing. Messy presentation of work. Handwriting which is difficult to read or childishly formed may mask the quality of ideas being expressed because the writer has to think about forming the letters.
* A weakness of short-term memory- dyslexic individuals usually have problems with short-term memory as their ‘working memory’ gets overloaded with having to cope with language- based tasks. They are inefficient and slower at effectively storing information into the long-term memory and then retrieving it. Once, information is stored into their long term memory, they rarely forget it. The problem with retrieving information is caused by difficulties coding either the visual or phonological aspects of language, or both.
* Organising and planning. Many dyslexic people appear to have difficulty with automatic organisation of two or more actions at one time. They may appear disorganised or clumsy. They may have difficulties ordering information, organising their assignments or work and organising their time. They have problems categorising information or ideas.
* Working within time limits. Many individuals recall having difficulties learning to tell the time when they were children and for some this confusion still exists. Individuals may have a vague concept of time- unless they continually monitor the time and date they may not sense how much times has gone by or how long something will take.
* Thinking and working in sequences: dyslexic people often tend to think holistically or globally. They remember the whole, rather than a series of what seems unconnected letters or steps. This means they find it difficult following sequences, instructions or procedures. It will also affect their writing-words, ideas, sentence structure get ‘all jumbled up’-despite this, the ideas are often contained within the piece of writing.
* Even the use of Word-processors does not guarantee error free work e.g. random or non-existent punctuation, missing letters or words, spelling errors-the same word spelt in different ways, letters in the wrong order, phonic approximations, omissions of syllables, errors in suffixes.
* Non-standard sentence structure, an impression of inexperience in writing.
* Misinterpretation of questions.
* Use of similar but wrong words, called ‘malapropisms’.

**Dyslexic individuals may experience a range of these difficulties BUT NOT NECESSARILY ALL OF THEM.**

Even advanced students often have difficulties.

Resources sheets for lecturers to use with their students have been included in the appendix- these have been adapted from Krupska and Klein (1995) and will facilitate the development of a learning strategy for students. They are a practical resource designed to be reproduced as a practical tool for lecturers and students alike.

**Raising awareness about dyslexia in health care settings:**

**A focus on difficulties that may exist in the workplace for health care staff**

The RCN (2010) has provided a comprehensive list of the characteristics of adults with dyslexia in their ‘Toolkit for nursing staff’. The toolkit is designed to be used by anyone working as a health care assistant, associate practitioner, student or registered nurse and acknowledges the diverse settings in which nursing staff work. Their list is used to inform others but they also outline self-help strategies on overcoming difficulties and support mechanisms to help (nursing) colleagues achieve their full potential in the workplace. The RCN point out that adults are often able to develop very successful coping strategies. However, these maybe developed up to a certain level and, as the task in hand becomes more difficult and complex, coping strategies may not be sufficient. One example is that the complex nature of professional practice and theory in health and social care programmes might expose students’ area of difficulties in which they will need further strategies of support from lecturers and practice teachers to facilitate the achievement of the required Professional and Academic standards. The RCN (2010) cite accurate and detailed documentation to the standard required in Record Keeping (NMC, 2009), the Assessment and interpretation of data/information/terminology as potential area of difficulty for a student with dyslexia. Lectures might need to incorporate this learning need into a learning contract or plan with clear strategies devised to address the achievement of learning objectives that take into account learning difficulties.

# Characteristics of adults with dyslexia

**Adults with dyslexia are likely to experience difficulties in the following areas**

***(RCN 2010: 12-13)***

**Memory**

* May take longer to ‘fix’ information into their long term memory
* May require information to be presented more than once
* Dyslexic people often find it more difficult to discard irrelevant or redundant information which could lead to memory overload and confusion
* May have problems remembering colleagues or patients names, drug names and medical conditions
* May find it difficult to remember phone messages or other information to pass on to colleagues
* May find it difficult to learn routines and procedures
* May find it difficult to transfer learning into a new setting( theory to practice)

**Organisation**

* May appear to have a short attention span and be easily distracted
* May have difficulty following instructions
* May have difficulty in ordering their ideas
* May have problems sequencing the order of tasks correctly
* May have problems with filing and looking up information alphabetically or sequentially
* May find it difficult to react quickly in busy environments or in an emergency
* May find it difficult to multitask as this requires a good memory, time management skills as well as the ability to work sequentially and be organised; having to do this simultaneously may overload their coping strategies

**Time Management**

* Planning ahead
* Estimate how much time is needed for a specific task or objective
* Complete tasks, assignments on time
* Balance coursework and placement commitments

**Reading**

* Reading aloud (may feel embarrassed)
* Misread familiar words
* Read very slowly and find scanning or skimming difficult
* Find text is distorted, particularly black print on white
* Find it difficult to read with noise distractions
* Have difficulty understanding medical or pharmacological language particularly those words which look or sound familiar
* Have difficulties with abbreviations
* Have difficulty reading information on whiteboards
* Have difficulty reading information on charts
* Need to re-read text several times to get the meaning

**Writing & Spelling**

* legibility
* writing in appropriate language
* writing concisely
* writing accurately-their work may contain frequent spelling and grammatical errors
* checking for mistakes in their written work
* writing under time pressures, some may write slowly and need to re daft their work
* spelling technical terms such as drugs and medical terms, especially those which look or sound similar
* identifying numbers and letter and /or getting them in the correct order
* filling in forms, especially when required to do so at speed

**Language**

**Some students may**

* feel embarrassed about language
* struggle to find the right word to say
* mispronounced unfamiliar words
* find it difficult to express themselves and talk in a disjointed way
* find it difficult to give clear instructions and /or information and have a tendency to go off on a tangent
* have difficulties in presenting verbal information in a structured way-may not follow a logical sequence
* sometimes experience a mental block particularly under stress
* take everything at face value –beware of words with double meanings

**Motor Skills**

* may have left and right co-ordination difficulties
* may take longer to follow a sequence e.g. computer programmes/file systems

# Studying with Dyslexia - What are the Challenges?

**The Dyslexic Learning Style**

Krupska and Klein (1995) discuss the dyslexia learning style arguing that it is important that teachers understand differences in learning because it will encourage teachers to adapt their teaching to meet the needs of students. Most of traditional teaching lecture/classroom is reflects the needs of auditory-verbal learning. For example teachers ask questions and expect responses from their students. It is interesting to note that dyslexic students are disadvantaged in such environments as they cannot absorb or respond to linguistic information quickly or automatically.

Dyslexia may be seen as a differing cognitive style. Like others, dyslexic individuals have strengths and weaknesses in how they process and organise information in the brain. Krupska and Klein (1995) highlight definitions of learning styles which is useful to reflect upon:

**A learning style is a cognitive style and-**

* One that accounts for individual differences in a variety of cognitive, perceptual and personality variables (1995 :39)
* A person’s typical modes of perceiving, remembering, thinking and problem solving(1995: 39)
* A broad term to describe factors which influence all aspects of an individual’s learning

It may be defined as “ characteristic cognitive, affective and physiological behaviours that serve as relatively stable indicators of how learners perceive ,interact with and respond to the learning environment”(1995:39)

Teaching methods in Western Society focus on activities which rely on language and the need to process a great deal of verbal information. This approach favours students who have no difficulties with processing language efficiently or using a sequential approach to learning.

A learning style is how a person best processes strengths and talents in a natural learning context ( which they might have learned through experience of what is enjoyable or works for them). The opposite may be the case : a teacher or lecturer is in a good position to facilitate the best learning style for an individual with dyslexia through raising awareness sessions on identifying learning styles and best approaches to learning for an individual learning style.This would apply too to any student . Krupska and Klein give an example of a child with a highly developed spatial intelligence who might show a preference for and a superiority in learning about new things through practical activities such as pictures, drawing activities, three dimensional building materials, video tapes and computer programmes containing graphics. They cite Gardner (1985) who refers to this as natural talents which are likely to continue into adult hood. These natural talents influence the career pathways of dyslexic students for example studying to be an Architect and a talent for architecture.

It has already been noted that the empathy tends to be an attribute of dyslexic individuals who are attracted to the Caring Professions-hence the numbers of dyslexics tends to be higher-The RCN (2010) state that one University found that 14per cent of its student nurses had been formally identified with dyslexia and the numbers may be higher if formally unidentified numbers are added.

# Hemispherical specialisations of the brain

|  |  |
| --- | --- |
| **Left Brain**Linear progression | **Right Brain**Global approach |
| Sequential: A to B to C | Simultaneous: complex inter-relationships |
| Temporal: one at a time | Spatial: all at once |
| Looks at the particular | Looks to the whole |
| Looks for cause and effect | Looks for inter-relationships |
| Uses language to name, describe, define | Uses pictures, shapes and colour |
| Analytical: breaks things down | Constructional: pattern - seeking |
| Deductive: draws conclusions through a logical progression from the general to the particular | Inductive: draws general conclusions from an intuitive basis and a variety of sources |
| Keeps to the facts | Makes several redundant elaborations in an idiosyncratic manner |
| Knows ‘how’ | Discovers ’what’ |
| Thinks in signs  | Thinks in design-remembers complex images  |
|  |
| **Common features of the dyslexic cognitive style**(adapted from Krupska and Klein 1995:42) |
|

|  |  |
| --- | --- |
| **Holistic learning style** | * Uses a global approach to problem solving
* Personalises learning
* Uses individual ‘props’ to aid understanding
* Needs overall picture as a guide to learning right from the start-fits in details much later on
* Needs to ‘work a head’, to get an overview of the topic as a whole from the start
 |
| **Intuitive thinker** | * Part of the process of holistic thinking-‘knows the answer through making associations and personal knowledge or thought, rather than systematic working out’
 |
| **Strong visual-spatial thinker** | * Responds to visual-spatial patterns e.g. keyboard
* Can use a form of thought where images are generated or recalled in the mind-these are manipulated, overlaid, translated, associated with other similar forms. They can be rotated ,increased or reduced in size, distorted, or otherwise transformed gradually from one familiar image to another (West cited by Krupska and Klein 1995: 42)
 |
| **Concrete learner** | * Good at hands- on practical skills
* Learns better from actively investigating a subject rather than passively receiving /hearing information from lecturer/teacher
* Sometimes needs to feel materials before writing or reading about a subject or needs to try something out for practice first.
 |
| **Divergent thinker** | * Particular strength makes connections between concepts and can see the interrelationship between sometimes unconnected ideas.
 |
| **Inductive thinker** | * Experiential learning and practice facilitates effective learning rather than rules and generalisations.
 |
| **Good spatial thinker** | * Can use three dimensional space creatively (e. g architects ,engineers).
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| Dyslexia Resource Sheet 1 - How can I tell if my student is dyslexic?*(Acknowledgments to Krupska & Klein Resource Sheet 1)*Use this resource sheet with your student as a **quick check list** to identify indicators. Refer your student to Dyslexia student support for further assessment and support as it maybe that your student has other learning difficulties that would benefit from an Assessment from an Educational Psychologist. This has to be formally arranged and your student will need to seek advice from the University and their employer if this is relevant. Please see section on the Legal Framework for students with dyslexia.The list sets out common difficulties dyslexic people have. Individuals who are dyslexic will usually show a pattern which includes a significant number of these difficulties:

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| **Shows significant discrepancy between oral and written performance****Experiences persistent or severe problems with spelling, even with ‘easy ‘ or common words****Spells erratically- good days and bad days****Has problems ordering things sequentially****Experiences left/right confusions****Has poor concept of time- needs to wear a watch and check time a lot****Has poor short term memory but once stored in long term memory can retrieve much information****Frequently misreads or miscopies****Has difficulty seeing errors i.e. proof reading****Consistently fails to express real understanding, ideas or vocabulary in written work**  | **Finds reading new words difficult or fails to recognise familiar ones****Has handwriting which is ‘messy’ poorly constructed or immature****Has trouble generalising ,or acquiring new rules****Does not seem to learn by ordinary or traditional teaching methods****Finds it difficult to organise self, work or time****Has difficulty paying attention, easily distracted visually or auditorily- doesn’t like to have radio on in the background, prefers quite environment to study****Loses place often when reading, or in a series ( e.g. instructions)****Has difficulty getting ideas onto paper****Consistently fails to express understanding, ideas or vocabulary in written work** |

Dyslexia Resource Sheet 2 – What are the implications for learning?*(Acknowledgements to Krupska & Klein 1995 resources sheet 5)*

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| **Dyslexia Learning Style** | **What does this mean for the dyslexic student?** |
| * Holistic or ‘right brain’ rather than sequential or ‘left brain’ approaches to learning- this is very important to understand as a lecturer.
* Problems with order, sequential connections- this has implications for accessing virtual learning e.g. CLIC/Blackboard, using computer programmes and remembering the sequences of these programme, saving word processing work, accessing Orris and so on.
* Difficulties in linguistic coding-inhibiting automatic processing in either the visual, phonological or motor areas when dealing with the written word- difficulties in learning a foreign language.
 | Limited strategies available for storing and retrieving language based tasks-that is putting verbal information into the long term memory or retrieving it quickly- implications for new learning, learning foreign language, and numeracy –may have problems remembering Medicines for prescribing purposes or working out formula. May become anxious which in turn impairs ability to perform at acceptable level unless the environment is supportive (please read section on the Legal framework).A reliance on semantic coding or meaning.A need to take an indirect or more roundabout way in dealing with language based tasks. |
| * Poor short term memory problems have implications for memorising facts, holding information. Easily overloaded or distracted and inefficient verbal processing.
 | Lack of facility and flexibility in manipulating linguistic expression and acquiring the conventions of written language.Needs to learn from specific examples and practice – rules and generalisations not particular helpful so spelling a weak area and understanding grammar and sentence structure and the conventions of written language.Prefers **‘concrete’** rather than **‘abstract’** routes to understanding.Has problems with organisation and structure of ideas rather than the content and ideas- verbally articulate but doesn’t always translate this strength into the written text. |

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| **Reliance on meaning and understanding indicate that dyslexic students learn best from :*** A **highly personalised** approach to learning.
* A need to have the learning process and conventions made **explicit.**
* A need to understand**how** and **why***?*
 |

Dyslexia Resource Sheet 3***Dyslexia learning style: strengths and weaknesses****(Acknowledgements to Krupska & Klein 1995 resources sheet 6)***The Dyslexic student is Right hemisphere dominant.****It would be useful to go through with your student examples of specific tasks, skills and activities which people with a right hemispheric preference would probably be good at and those which they may find difficult- do the same with left hemispheric preferences as a tool to aid understand of learning styles and how to facilitate learning strategies.**

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| **Left Hemisphere Dominant*** **Has a good short term memory-numeracy and literacy a strength including learning a foreign language**
* **Thinks in words-enjoys words, crosswords**
* **Remembers sequences**
* **Takes in information step by step in a logical sequence**
* **Looks for cause and effect**
* **Relies on induction and analysis**
* **Is time conscious**
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| **Right Hemisphere Dominant*** **Relies on highly personal associations to remember**
* **Thinks in images/pictures-enjoys visual presentations, pictures, art, auditory learning .Likes demonstrations and diagrams. Responds better to visual or other modes of representations like podcasts, radio.**
* **Remembers in patterns-can see emerging themes ,images**
* **Takes in parts in terms of whole-holistic thinkers –they grasp complex interrelationships at once but they often do not respond to step by step instructions. Give an overview**
* **Looks for simultaneous connections**
* **Is adept at synthesis and intuitive tasks- often excels in academic work at HEI as works best in subjects chooses**
* **Is space conscious therefore good at design, creative thinking and solution focused approaches to learning and working**
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Dyslexia Resource Sheet 4***Summary of areas of difficulty for dyslexic students****(Acknowledgements to Krupska & Klein 1995 resources sheet 7).*This is useful to refer to when planning your support to your dyslexic student.

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| **Reading****Sorting, selecting materials, reading overload, understanding and retaining information, lack of speed, extracting main points ,summarising, misreading questions, understanding inferences, reading words that are unfamiliar.** |

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| **Spelling****Poor spelling means inters with ability to write clearly and vocabulary may be limited as avoids difficult words to spell- examiners assess work and grade without understanding or providing constructive feedback on improving performance for dyslexic students. Impedes note taking and inhibits confidence in spelling.** |

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| **Note-taking: using words****Difficulties in listening and writing at the same time. Sorting out main points. Taking enough clear notes, reading notes back, writing illegible impairs reading for self and others. Messy.** |

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| **Writing** **Handwriting –poor construction/lack of speed/interfers with getting ideas onto paper. Written expression, sentence structure, punctuation poor and erratic. Planning and structuring written work takes time. Conventions of writing, transitions between ideas, sequences are a challenge. Finds it difficult to relate abstract to particular, theory to practice, editing and proof reading.** |

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| **Oral language****Taking in information or lectures quickly enough****Misunderstands instructions or information. Sorting out what is discussed in seminars /group discussion. Word finding problems to describe events, feelings. Pronunciation of polysyllabic words. Learning a foreign language.** |

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| **Examinations****Timed conditions are stressful- reading, writing and spelling problems compound anxiety****Memory problems affecting recall, revision and performance. Discrepancy with coursework often result in considerably lower marks not reflecting often intelligence and creativity.** |

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