Unit 1 - The nature of learning disability and its causes

Prof. Bob Gates — Professor of Learning Disabilities (Thames Valley University - London)
Dr Stellios Ioannides — Programme Leader in Learning Disabilities (Thames Valley University - London)

Overview

Unit 1 will:

- Consider the difficulties in defining learning disability.
- Explore the features of commonly used definitions of learning disability.
- Identify the range of diagnostic factors used to establish whether someone has a learning disability.
- Consider the prevalence of learning disability in the general population.
- Distinguish between pre-, peri- and post-natal causative factors and identify a number of known conditions in learning disability.
- Identify some of the health challenges resulting from particular clinical manifestations of learning disability that people with learning disabilities may experience.
- Outline genetic and chromosomal abnormalities and their manifestation.
Introduction

Unit 1 - The nature of learning disability and its causes, firstly explores the methods of determining whether someone has a learning disability and how this helps us to define what learning disability means. This is sometimes difficult, as the term learning disability may mean different things to different people - not only in Scotland but also internationally. Furthermore, learning disability has different meanings between healthcare professionals, service agencies and other disciplines.

These issues shall be explored later in the unit, as well as examining some of the important concerns surrounding the incidences and prevalence of learning disability. The focus will be particularly on Scotland, but the concept of learning disability will also be considered as universal.

Next, the unit briefly outlines a range of causative factors that may result in learning disability. We will distinguish between pre-, peri- and post-natal factors and identify a range of known conditions in learning disability.

In conclusion, the unit outlines genetic and chromosomal abnormalities and their manifestation and identifies some of the health challenges that people with learning disability may experience because of these particular clinical manifestations.
How do we decide if someone has a learning disability?

To decide if someone has a learning disability, we could consider the following indicators and frameworks:

- intellectual ability;
- legislative definitions of learning disability;
- social competence.

**Intellectual ability**

Some would argue that intelligence is an obvious indicator to use to judge whether someone has a learning disability. This immediately poses the following questions: *what is intelligence?* and *how is it demonstrated?*

The answers to these questions go beyond the scope of this learning resource, as they merit a much more in-depth exploration. However, as a starting point it could be assumed that intelligence is connected with the ability to solve problems and that this ability, or the absence of it, can be measured.

A traditional method of measuring intelligence is by employing intelligence tests, which have been in use since early 1900s. These tests allow a comparison of the intellectual ability of one individual, by completing a range of standardised tests, against a large representative sample of the general population. The representative sample is of a similar chronological age to that of the individual. The score attained on completion of the tests is then converted into a percentile, which provides information on how the individual compares with others in the general population.

This converted percentile is referred to as an intelligence quotient (IQ). This has been (and continues to be) used as one of the principle processes for identifying learning disability. The intelligence test seeks to compare the mental age of an individual against their chronological age. Given that intelligence is present in the general population and is evenly distributed, it is possible to measure how far an individual moves away from what constitutes ‘normal’ IQ (Figure 1.1).

The World Health Organisation has classified the degree of learning disability (retardation) according to how far an individual moves away from the normal distribution of IQ for the general population.

Using this system, an individual who consistently scores two standard deviations below the ‘norm’ of an IQ test, that is — a measured IQ of less than 70, would be define as displaying a learning disability.
Those with an IQ between 71 and 84 are said to be on the borderline of intellectual functioning, whereas those within the range 50-69 are generally identified as having *mild* learning disability (mild mental retardation).

The term *moderate* learning disability (moderate mental retardation) is used when the measured IQ is in the range of 35-49. *Severe* learning disability (severe mental retardation) is reserved for people whose IQ is in the range of 20-34. Finally, the term *profound* learning disability (profound mental retardation) is used to refer to people with complex additional disabilities; for example sensory, physical or behavioural. Calculating an IQ in such cases can prove difficult due to the severity of cognitive impairment and an absence of verbal communication.

![IQ Distribution](image)

**Figure 1.1:** the normal distribution curve of intelligence.

**Legislative definitions of learning disability**

Legislators, both in the UK and other countries, have attempted over centuries to use the law to define learning disability, which may explain (at least in part) why many people have conflated learning disability with mental illness. The unfortunate reciprocal identification of these two states of being has resulted in people with learning disabilities being the subject of considerable unnecessary legislation.
The following brief exploration considers only legislation passed during the 20th century, in particular focusing upon mental health legislation. For a summary of the historical passage of legislation as it has affected people with a learning disability, see Unit 2.

The Mental Deficiency Act (1913) stated:

‘Mental defectiveness means a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury.’

This Act followed the Radnor Commission of 1908 and introduced the compulsory certification of defectives. In many ways, the Mental Deficiency Act of 1913 reflected the strong eugenics (‘the science of using controlled breeding to increase the occurrence of desirable heritable characteristics in a population,’ Oxford English Dictionary) movement of the early twentieth century. Unsurprisingly, the Act required that defectives be identified (and subsequently segregated) from the rest of society. By 1959, terminology, and possibly attitudes, had changed: the Mental Health Act of 1959 introduced the terms listed below in Box 1.1.

**Sub-normality**: a state of arrested or incomplete development of mind, not amounting to severe sub-normality, which includes sub-normality of intelligence, and is of such a nature or degree which requires, or is susceptible to, medical treatment or other special care or training of the patient.

**Severe sub-normality**: a state of arrested or incomplete development of mind which includes sub-normality of intelligence and is of such a nature or degree that the patient is incapable of living an independent life or guarding himself/herself against serious exploitation, or will be so incapable when of an age to do so.

**Psychopathic disorder**: a persistent disorder or disability of mind, whether or not including sub-normality of intelligence, which results in abnormally aggressive or seriously irresponsible conduct, on the part of the patient and requires, or is susceptible to, medical treatment.

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**Box 1.1 Classifications of the Mental Health Act 1959**

The Mental Health Act (1959) required local authorities to make both day service and residential provisions for people with a mental sub-normality and placed a new emphasis on the re-integration of this group of people into the communities to which they belonged. However, this Act should be judged in context, particularly that it followed the implementation of the National Health Service Act (1948). The consequent medicalisation of ‘mental sub-
normality,’ following the National Health Service Act, is clearly reflected in the Mental Health Act of 1959 and therefore its definitions reflected this.

Note the strong emphasis in the definitions placed on treatment (Box 1.1). In addition, the Act made extensive reference to the Responsible Medical Officer. It is at this point in the history of mental health legislation that the influence of medicine in defining the nature of learning disability exerted its greatest impact. Due to continued social reform and pressure from lobby groups, mental health legislation was again reformed in 1983/4. The Act of 1959 was replaced with the Mental Health (Scotland) Act 1984; once again old terminology was changed and replaced with the terms shown in Box 1.2.

**Severe mental impairment:** a state of arrested or incomplete development of mind, which includes severe impairment of intelligence and social functioning and is associated with abnormally aggressive or seriously irresponsible conduct of the person concerned.

**Mental impairment:** a state of arrested or incomplete development of mind (not amounting to severe mental impairment) which includes significant impairment of intelligence and social functioning and is associated with abnormally aggressive or seriously irresponsible conduct on the part of the person concerned.

Thus, it can be seen that the nature of these definitions excluded the large majority of people with learning disability; that is, unless learning disability (mental or severe mental impairment) coexisted with aggressive or seriously irresponsible behaviour, they were not subject to this new piece of legislation. The 1984 Act represented a major shift in the perception of people with a learning disability within mental health legislation. For the first time, the legislation distinguished between, and separated, learning disability from mental illness.

**Social competence**

Social competence is the final criterion (or indicator) to identify learning disability discussed in this unit. Mittler (1979) has suggested that most countries have used criteria based on social competence, that include the ability of an individual to adapt to the changing demands made by the society in which that individual lives. Of course, this sounds relatively straightforward; one simply identifies people who are socially incompetent, and who do not respond well to changing societal demands. Burton (1996) has said,
‘Social competence concerns such areas as understanding and following social rules, adjusting social behaviour to the situation, social problem-solving, and understanding others. These are the areas where people typically fail independent living.’

(Burton, 1996 p40)

Based on an individual performing significantly below what could be considered as normal, one might say that the person has a learning disability. However, there is a number of problematic issues to consider in relation to the criterion of social competence. Firstly, social incompetence can be found in a wide cross-section of people, not just those with a learning disability. Consider, for example, people with chronic mental health problems, as well as those who actively choose to reject societal norms.

Alternatively, there may be problems of communication. Difficulties of hearing and vision could be the cause of social incompetence and may not necessarily involve a learning disability. Equally, there is the issue of expectation and the notion of a self-fulfilling prophecy. Let us assume that an individual is identified as having a learning disability based on measured social incompetence. Is this to be interpreted as an actual learning disability, or is the social incompetence result of the hospital setting where this individual spent their formative years? Such a finding is not beyond the realms of credibility. In Scotland, it is only relatively recently that the large learning disability hospitals have begun to close. Thousands of people with a learning disability have been segregated from society, and have consequently led a highly devalued lifestyle.

Opportunities for the development of social competence were rare in institutions. Even when such incidences arose, these were perverted attempts to create a form of social reality within an institutional setting. There have been numerous studies undertaken on the effects of people who are deprived of normal environments. Dennis (1973) found that institutionalised children were delayed in basic competencies such as sitting, standing and walking, and reported that they had no opportunity to practise these skills. He also noted that with the additional lack of stimulation there was significant delay in language acquisition, social skill development and emotional expression:

‘...as babies they lay on their backs in their cribs throughout the first year and often for much of the second year.... Many objects available to most children did not exist.... There were no building blocks, no sandboxes, no scooters, no tricycles, no climbing apparatus, no swings. There were no pets or other animals of any sort... they had had no opportunities to learn what these objects were. They never saw persons who lived in the outside world, except for rather rare visitors.’

(Dennis, 1973 pp22-23)
In short, the expectations of people in such environments were low, therefore it is not unreasonable to assume that their ability to develop social competence was reduced. Despite the criticisms presented in this section, the use of social competence as means for the identification of a learning disability remains a globally used criterion.
Definitions of learning disability

In the UK, the term learning disability is generally used and accepted to mean:

‘[a] significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), with, a reduced ability to cope independently (impaired social functioning) and which started before adulthood, with a lasting effect on development.’

(DOH, 2001 p14)

In Scotland, the term learning disability specifically describes:

‘... those with a significant, lifelong condition that started before adulthood, that affects their development and which means they need help to understand information, learn skills and cope independently.’

(Scottish Executive, 2000)

In the USA, the American Association on Mental Retardation defined what we would call learning disability as:

‘[mental] retardation refers to substantial limitations in present functioning. It is characterised by significantly sub-average intellectual functioning, existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. Mental retardation manifests itself before age 18.’

(AAMR, 1997 p.5)

A general discussion on terminology


Its general usage in the UK is reserved for describing a group of people with significant developmental delay, which results in arrested or incomplete achievement of the ‘normal’ milestones of human development. These milestones relate to intellectual, emotional, spiritual and social aspects of development. Significant delays in a number of these areas may lead to a person being defined, categorised or described as having learning disabilities if it is acquired prior to adulthood.
Despite widespread usage in the UK, it should be remembered that it is not a term that is used internationally (refer to the AAMR definition above of learning disability [mental retardation]). Nor is it a longstanding term in the UK. The term ‘mental handicap’ was more commonly employed; but was eventually replaced, as it was perceived as a negative portrayal of people with a learning disability. Interestingly, a study by Nursey et al (1990) demonstrated that parents and doctors had preferences in the words that they used when referring to people with learning disability. Conducted via a questionnaire, the study established that both parents and doctors preferred the term ‘mental handicap’ or ‘learning difficulties.’ However, the doctors were more inclined to accept the words ‘dull,’ ‘backward’ and ‘developmentally delayed.’ In the USA, the term ‘mental retardation’ is widely used for the classification of learning disability. This system is based on the ICD-10 Classification of Mental and Behavioural Disorders and uses the term ‘mental retardation’ to refer to:

‘...a condition of arrested or incomplete development of the mind, which is especially characterised by impairment skills manifested during the developmental period which contribute to the overall level of intelligence, i.e. cognitive, language, motor and social abilities.’

(WHO, 1993)

Interestingly, the use of the term ‘mental retardation’ has been subject to considerable debate in the USA:

‘[a]s all of us have experienced, the term mental retardation has expanded from a diagnostic label embedded in both legislative and social norms to a pejorative, stigmatising term that is increasingly offensive to a large group of individuals.’

(Schalock, 2001; p4)

Notwithstanding this, the American Association on Mental Retardation noted that,

‘...after two years of exploration for an alternative term they had not found one that meant the same thing, and on this basis they recommended that the term should not be replaced.’

(Schalock, 2001; p4)

We suggest that you think carefully about terminology, as it is likely that the USA (and other countries) will adopt the term ‘intellectual disability’ in the future. Remember people are sensitive to the labels or terms applied to them and some of these can be extremely hurtful.
Incidence and prevalence of learning disability

Calculating the incidence of learning disability is extremely problematic: largely due to a present inability to detect learning disabilities at birth in the vast majority of infants. It is only the obvious manifestations of learning disability that can presently be detected at birth; such as Down’s Syndrome. The physical characteristics of Down’s Syndrome enable an early diagnosis and subsequently the ability to calculate incidence of this disorder. Where there is no obvious physical manifestation, one must wait for delay on a child’s development to become apparent before ascertaining whether they have learning disabilities. Therefore, it is more common in learning disability to talk about prevalence rather than incidence. Prevalence is concerned with an estimation of the number of people with a condition, disorder or disease as a proportion to the general population.

If we use IQ as an indicator of learning disability, then we are able to calculate that 2-3% of the population has an IQ below 70. This represents a large segment of society; given that a large number of people with such an estimated IQ will not encounter a caring agency. It is more common to refer to the ‘administrative prevalence.’ Administrative prevalence refers to the number of people provided with some form of service from caring agencies. Historically, there has been a consensus that the overall prevalence of moderate and severe learning disability was approximately 3-4 people per 1000 of the general population (see for example, Open University, 1987; DoH, 1992 and Scottish Executive, 2000).

Such prevalence would appear to be universal. For example, as far back as 1985, Craft suggested that international studies identified a relatively constant prevalence for severe and moderate learning disability as 3.7 persons per 1000 of the population. Mild learning disability is actually quite common: estimated to be in the region of 20 persons per 1000 of the population. Furthermore, in the UK it has been calculated that of the 3-4 persons per 1000 population with a learning disability, approximately 30% will present with severe or profound learning disability. Within this group, it is not uncommon to find multiple disability that includes physical and (or) sensory impairments/ disability as well as behavioural difficulties. This group of people requires life-long support in order to achieve and maintain a valued lifestyle.

Drawing on more recent and extensive epidemiological data, Emerson et al (2001) have reinforced the above estimations of prevalence rates for severe learning disabilities. They state rates to be in the region of 3-4 persons per 1000 of the population. The estimates of prevalence rates for the section of the learning-disabled population referred to as with ‘mild learning disability’ are much more diverse. This figure is estimated to lie between 25-30 people per 1000 of the population. Based on such estimates, it can be assumed that
there are some 230,000-350,000 persons with severe learning disabilities and possibly 580,000-1,750,000 persons with mild learning disability. It is also known that there is a slight variation in the ratio of males to females in both mild and severe learning disability; with males having slightly higher prevalence rates.

In Scotland, there are an estimated 120,000 people with learning disability. However, only 30,000 of these will have regular contact with local authorities or the National Health Service. Enable (2003) has suggested that 20 people out of every 1000 have a mild or moderate learning disability and that 3-4 in every 1000 have a profound or multiple disability. It also states that the number of people with learning disability has increased by 1.2% per year over the last 35 years and that since 1965 the number of people with severe learning disability has increased by 50%. This clearly represents a significant section of Scottish society and thus local communities. Like other citizens, they are entitled to access the resource of skilled professionals who are able to meet their health and social care needs when and where they are required.
Causes of learning disability

The isolation and subsequent identification of the many causes of learning disability has been both a complex and relatively slow process in the past. However, with recent advances in genetic technology and increasing awareness of the effects of social deprivation, new knowledge and understanding of the many causes of learning disabilities is continually developing. Learning disability should not be regarded as a single condition; rather it is a compendium of various degrees of impairment in intellectual and social functioning. The range of causative factors in learning disability is variable and diverse and the origin of many conditions is still unknown. This unit will now explore some of the main causes and manifestations of learning disability found within society.

It is envisaged that, if you wish to expand your knowledge and understanding in this area, you will use the recommended reading at the end of the unit. For the remainder of this unit, you will necessarily encounter a range of technical terms that you may find unfamiliar. It is envisaged that you will take the responsibility to ensure that you research all new terms and understand their meaning.

Knowing and understanding the cause of an individual’s learning disability is important for several reasons. Gates (2000) has emphasised that the identification of the cause of a learning disability (and the provision of an early diagnosis) are crucial in limiting the feelings of self-blame that may be experienced by some parents of children with learning disabilities. Gates has also suggested that informed parents are less likely to reject the child and more likely to adapt appropriately to the care demands posed by having a child with learning disabilities. Other reasons for the identification of the causes of learning disability and early diagnosis include the need:

■ To understand the possible manifestations of the identified condition over a defined period.

■ To identify the range of therapeutic approaches that may be used to ameliorate the effects of the condition, including mobilising specific resources.

■ To establish in some cases, the degree of risk to other family members of the condition occurring in subsequent siblings and offspring.
Classification of learning disability

Learning disability may be classified in a number of ways. One is by the cause of the learning disability. This may fall into two main categories: genetic or environmental. Genetic conditions may originate prior to conception, or during the very early stages of the development of the foetus. Environmental causes, on the other hand, include those external factors that may affect the development of a foetus and child either in the pre-conceptual, pre-natal, peri-natal or post-natal periods.

The second method is the stage of development at which the damage to the child is incurred. Where the cause of the learning disability is unknown, such conditions are usually described as idiopathic.

The following sections will enable you to understand some of the clinical features associated with specific conditions or syndromes found within learning disabilities. When reading each section, you may wish to reflect upon the type of healthcare that may be required in responding to the needs of affected individuals and their families.

Genetic causes of learning disability

Many of our physical features (phenotype) originate from our genetic make up (genotypes). The information required for the development of these characteristics exists in the form of genes that are passed on from parents to offspring. As you will be aware, genes are found on chromosomes, present within the nucleus of every human cell and consist of the genetic material DNA (Deoxyribose Nucleic Acid).

It is believed that between 30-40% of moderate to severe learning disabilities are caused by changes in the genetic makeup of an individual (Knight et al, 1999). Developments in genetic technology arising from The Human Genome Project suggest that the percentage may be even higher. A study by Knight et al (1999) has shown that a number of previously undiagnosed conditions in learning disability could be attributed to subtle chromosomal rearrangements.

Figure 1.2 presents a simple classification system of the genetic causes of learning disability. An example is given for each group and further examples are provided in the next section of this unit.
Chromosome and gene abnormalities

Figure 1.2: A simple classification system of the genetic causes of learning disability.

**Chromosomal abnormalities**

This section will provide specific examples of conditions in learning disability that result from changes in either the structure or number of autosomes and sex chromosomes. Where changes in the structure of the chromosome may occur, this may include the deletion, duplication, translocation, non-disjunction or inversion of genetic material.

1. **Manifestations of autosomal abnormalities:**

*Down’s Syndrome (Trisomy 21):* this syndrome was first described by John Langdon Down in 1866 and results from the non-disjunction of chromosome 21 pair during cell division, resulting in an individual having three rather than two chromosome 21. Incidence rate of this syndrome is between 1 in 650 and 1 in 700 (Mueller & Young, 1998), becoming higher with an increase in maternal age. Typical characteristics of individuals include short stature, small ears, ear and eye defects, heart defects and an increased susceptibility to infections. In rare cases, some individuals with Down’s Syndrome may have a mixture of cells that contain either trisomy 21 or the normal number of chromosome 21 and this condition is known as *mosaicism*.

*Cri-du-Chat:* a relatively rare condition with an incidence rate of approximately 1 in 37,000 live births. It was first described in 1963 by Lejeune et al and given the name because affected infants are found to have high pitched cries like those of a cat. Typical characteristics include microcephaly, low set ears, wide spaced eyes and moderate-severe learning disability.
2. Manifestation of sex-chromosome abnormalities

Klinefelter Syndrome (XXY): first described by Klinefelter and associates in 1942 and only affecting males. It occurs from the non-disjunction of the XY chromosomes during cell division, resulting in an individual having an extra X chromosome. Incidence rate of this syndrome is between 1 in 500 and 1 in 1000 births. Typical characteristics include a large forehead, ears and jaw, and following the onset of puberty hypogonadism (small testicles) and gynecomastia (enlarged breasts). Psychosocial problems are also common. The degree of learning disability is said to be moderate, with a few cases of individuals with profound learning disability.

Turner Syndrome (XO) - affects only females and results from the loss of one of the normal two XX chromosomes. Incidence rate estimated to be 1 in 2,500 births. Typical characteristics include short stature, web like neck, non-functioning ovaries, and in some cases, learning disability although the normal range of intelligence is generally associated with this syndrome.

Gene abnormalities

This section provides specific examples of conditions in learning disability that result from changes in the structure of the genetic material making up a gene. These changes may include the deletion, duplication, addition, inversion and substitution of the parts of the DNA. Gene abnormalities are generally categorised by the mode of transmission of the defective gene. You may wish to refer back to the simple classification system in Figure 1.2. These forms of transmission can be described as autosomal dominant, autosomal recessive or X-linked and are all described below. Some conditions may also result from the interaction of various genes (polygenic), though these are not described in this unit.

Autosomal dominant conditions

In the case of autosomal dominant conditions, transmission is reliant upon only one parent being a carrier of the defective gene and there is a 50% chance of it occurring in the offspring. (Figure 1.3)

The next section provides you with some examples of disorders inherited through this process.

Prader-Willi Syndrome: results from deletion of part of the genetic material on the long arm of chromosome 15 and usually originates from the father. Incidence rate is approximately 1 in 15,000 and affects both males and females. Characteristics of this condition include small hands and feet, hypogenitalism (underdeveloped testes) and cryptorchidism (undescended testes) in males. One of the most notable characteristics, however, is hyperphagia (excessive over-eating). Without proper help and support, people with this syndrome commonly experience gross obesity and the related
conditions of heart disease and diabetes, which may result in premature death.

*Tuberous Sclerosis (epiloia)*: first described in 1880 and estimated to affect between 1 in 30,000 to 40,000 births. It is characterised by growths on the brain and major organs. A butterfly-shaped rash (adenoma sebaceum) will be present on the face. Epilepsy is common in people with this condition. Whilst normal intelligence may be present, 60% of affected people have some degree of learning disability.

![Autosomal Dominant Inheritance Diagram](image)

Autosomal Dominant Inheritance

- Father with condition: $D^1d$
- Normal mother: $dd$
- Son with condition: $D^1d$
- Daughter with condition: $D^1d$
- Normal daughter: $dd$
- Normal daughter: $dd$

$D^1d = father with condition$
$D^1d = children with condition$
$dd = children without condition$

Figure 1.3 Dominant inheritance

Autosomal recessive condition

In the case of autosomal recessive conditions, transmission is reliant on both parents being carriers of the defective gene and in this case, there is a 25% chance of the condition manifesting in the offspring. (Figure 1.4)
The next section gives examples of disorders inherited through this process.

**Phenylketonuria**: described by Fölling in 1934, a disorder that affects protein metabolism, resulting in raised levels of phenylalanine in the blood. If not maintained at a normal level through diet control, these levels may become toxic and cause brain damage. This condition is thought to affect 1 in 12,000 live births and is commonly diagnosed using the Newborn blood spot test, carried out 6 to 14 days after birth. Left untreated, typical characteristics include lack of pigmentation in the eyes, skin and hair, hyperactivity, autistic features, epilepsy and a severe degree of learning disability.

**Hurler Syndrome**: one of a number of mucopolysaccharide disorders, which has an estimated prevalence rate of 1 in 150,000 births. It is characterised by the abnormal storage of mucopolysaccharides in connective tissue. Affected individuals are short in stature and have thick coarse facial features and a low nasal bridge. Hirsutism is a common characteristic, as is the presence of heart defects. Affected individuals may also have sight and hearing impairments. Death normally occurs in adolescence.

![Autosomal Recessive Inheritance](image-url)
X-linked recessive conditions

Fragile X Syndrome: occurs more commonly in males than females, with a prevalence rate of 1 in 4000 and 1 in 8000 respectively. It is believed to be the most common cause of learning disability next to Down’s Syndrome. This condition arises from the bottom tip of the X chromosome breaking off, making the site fragile. Common characteristics include oversized head, long face, prominent ears, large jaw, language difficulties and varying degrees of learning disability. Behavioural problems are also characteristic.

Environmental factors

Environmental factors have an important influence on the physical and intellectual development of individuals. Where the environment contains positive factors for growth; such as food, warmth, love, safety and sensory stimulation, normal development should ensue. However, in some cases, certain environmental conditions may hinder the growth and development of an individual, which could result in a learning disability. Environmental factors that may exert influence on development might occur in the pre-conception, pre-natal, peri-natal and post-natal stages and include infections, trauma, substance abuse and social deprivation. (Figure 1.4)

![Figure 1.4 Environmental causes of learning disability](image)

Environmental causes of learning disability include trauma during the pre-natal, peri-natal and post-natal phases and accidental and non-accidental injury. At the pre-natal stage, this can also include the delivery of the child using forceps or suction. Restriction of the oxygen supply to the foetus during the pre-natal and peri-natal phases can result in brain damage. In the latter
stage, asphyxiatio n may occur if the umbilical cord becomes wrapped around
the baby's neck.

The consumption of drugs, including alcohol [substance abuse], also accounts
for stunted growth and lack of brain development observed in some children.
Toxic agents, lead poisoning, chemical pollutants and hard metals; such as
mercury, manganese and strontium poisoning, are also recognised causes of
brain damage. In the post-natal phase of development, poor nutrition and a
lack of sensory and social stimulation can impair development and result in
learning disability. Other causes of learning disabilities include acquired
infection that can result in brain damage at pre-natal, peri-natal and post-
natal stages of development and encompass rubella (German measles),
mumps and chickenpox. In the past, syphilis was also a common cause of
learning disability, but this is now less common. Viral infections may give rise
to encephalitis (inflammation of the brain) and the subsequent degree of
learning disability can be severe. Dehydration occurs rapidly, leading to brain
haemorrhage and subsequent brain damage.

Congenital Rubella: first described by Gregg in 1941, is characterized by a
number of severe defects that include cataracts, deafness, congenital heart
defects and learning disabilities. Damage occurs when the rubella virus
passes across the placenta and attacks the developing nervous tissue in the
unborn foetus. In recent years, the prevalence of congenital rubella has
declined with the introduction of rigorous immunization programmes.

**Reflection point 1.1**

Consider the narratives of Marie, Shona, Scott, Alan and Purdie. All could be
described as having learning disabilities, but all are unique beings with their
very personal needs and aspirations. Compare their narratives with that of
the account provided about Callum from his mum. His special needs make
him very different again from Marie, Shona, Scott, Alan and Purdie.

- Why does Shona say that people are frightened of people with learning
disabilities? Are you frightened of people with learning disabilities? If so,
why?

- Why do you think the doctor thought Marie was faking her epilepsy?

- What kind of information would you have given Scott in your health
setting?

- Have you ever seen any one being rough with an individual as Alan
reports? If you have, what did you?
What do you think of Purdie’s encounter with healthcare professionals? Would it have been better or worse with you?
Conclusion

This resource has attempted to portray the complexities of learning disability. Many textbooks refer to ‘people with learning disability’ merely as a homogenous group. This is both simplistic and unhelpful, not only for people with learning disability, but also for their families and professional carers.

We have also examined the varying causes and manifestations of conditions in learning disability. Changes in the genetic makeup of individuals result in the manifestation of specific syndromes, whilst environmental factors can also cause brain damage in the pre-natal, peri-natal and post-natal periods. Diagnosing the cause of learning disability is important for families to allow them to adapt to their child. It is also important for health services, as it provides specific information about actual and potential needs of individuals, allowing the mobilisation of appropriate resources. Caution, however, must be exercised, as providing a diagnostic label may reduce individuality.

As a health professional, you must ensure that you endeavour to see and value a person and their individual characteristics before any diagnosis. This issue will be further developed in Units 3 and 4.

People with a learning disability share a common humanity with all of us. Most people desire love, a sense of connection with others, to be safe, to learn, to lead a meaningful life, to be free from ridicule and harm, to be healthy and free from poverty. People with learning disabilities are no different in this respect. It is in the spirit of this common humanity that this text is presented. It is hoped that it will, in some small part, assist carers in bringing about the inclusion of people with learning disability into their communities. It is for you, as a healthcare professional, to ensure that you offer healthcare to all people regardless of their difference.
References


Mental Deficiency Act 1913. London: HMSO.

Mental Health Act 1959. London: HMSO.

Mental Health Act 1983. London: HMSO.


Further reading


Learning disability resources

General Resources

Scottish Executive


Centre on Human Policy

http://soeweb.syr.edu/thechp/ - John O’Brien home site lots on supported living/advocacy - useful mainly American links.

Department of Health - Learning Disabilities


Enable

http://www.enable.org.uk/ld/factsfigures.html - the Enable web site is a useful address for all kinds of information but here you can check out facts and figures for Scotland.

National Electronic Library for Learning Disability

http://libraries.nelh.nhs.uk/learningdisabilities/ - National electronic library - excellent for the learning disability branch-useful reviews for example, supported employment.

British Institute for Learning Disabilities

http://www.bild.org.uk - source of good practice guidance; information and resource centre.

The Foundation for People with Learning Disabilities

http://www.learningdisabilities.org.uk/index.cfm - works to improve the lives of people with learning disabilities through presenting views, research, and influencing policy.

Joseph Rowntree Foundation

http://www.jrf.org.uk - includes research, publications and social policy relating to learning disability.
King’s Fund
http://www.kingsfund.org.uk - health promotion resource for the London area, research, publications and library.

Causes of learning disability resources

ASSERT (Angelman Syndrome Support Education and Research Trust)
PO Box 505
Sittingbourne
Kent ME10 NE
Tel: 01980 625616

The National Autistic Society
393 City Road
London EC1V 1NE
Tel: 020 7833 2299

Cornelia de Lange Foundation
Tall Trees 106 Lodge Lane
Grays
Essex RM 16 2UL
Tel: 01375 376439

Cri-du-chat Syndrome Support Group
Penny Lane
Barwell
Leicestershire LE9 8HJ
Tel: 01455 841680

Down’s Syndrome Scotland
Head Office
158-160 Balgreen Road
Edinburgh EH11 3AU
Tel: 0131 3134225
Email: info@dsscotland.org.uk

SOFT UK (Edward’s Syndrome)
48 Froggart’s Road
Walmley
Sutton Coldfield
West Midlands B76 8TQ
Tel: 0121 351 3122
The Turner Syndrome Society
C/o The Child Growth Foundation
2 Mayfield Avenue
London W4 1PW
Tel: 020 8994 7625/020 8995 025