1 – Introduction to Speech and Language Therapy

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Chapter 1: Introduction to Speech and Language Therapy

1.1 What is speech and language therapy?

Speech and language therapy (SLT) is an important health discipline which is responsible for the management of children and adults with communication and swallowing disorders. The individuals who practice this discipline – speech and language therapist (SLTs) – assess, diagnose and treat these disorders as well as perform a number of other key roles. SLT is a large and growing profession. The Royal College of Speech and Language Therapists (RCSLT), the professional body for SLTs in the United Kingdom, has more than 16,000 members. Its counterpart association in the United States, the American Speech-Language-Hearing Association (ASHA), reports that at the end of 2014 it had 150,468 speech-language pathologists as certified members and non-members. In this chapter, you will be introduced to the work of this rewarding health profession. In the rest of this section, the roles that are performed by SLTs will be examined. In addition to assessment, diagnosis and treatment, these roles include education of clients and families as well as advocacy for people with communication disorders. This section will also address the many misconceptions about SLT that exist among the general public. These misconceptions can be troublesome in that they can dissuade people both from entering the profession and from availing of the services that SLT can offer.

Later sections in the chapter will expand your understanding of the professional remit of SLT. In section 1.2, the question 'Why study speech and language therapy?' is posed. The answer to this question involves several dimensions, the most important of which is that communication and swallowing disorders cause distress to, and limit the life chances of, a large number of individuals. A society which rightly values these individuals will seek to mitigate the negative effects of these disorders by providing appropriate clinical services. In section 1.3, the question 'What do speech and language therapy students need to learn?' invites examination of the knowledge base that informs SLT. This knowledge base is very large indeed and includes academic learning of linguistic and medical-scientific disciplines on the one hand and a range of clinical skills on the other hand. In section 1.4, the children and adults who are the primary concern of SLT are examined. These individuals have

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developmental and acquired communication and swallowing disorders. Some of these disorders will be examined in this section. SLT is almost never conducted in isolation of the families and carers of people with communication disorders. The important roles that these individuals play in SLT intervention with clients will be addressed in section 1.5. Finally, in section 1.6, the growing calls for SLT to make a contribution to public health are examined.

As a window onto the work of SLT, let us consider the following scenario. Mary is a 50-year-old primary school teacher. She is married and has three teenage children. She has enjoyed good physical and mental health as an adult. Mary drives the ten miles to her work each day. On her way to work one day, she is involved in a serious road traffic accident. She sustains a severe head injury as well as chest and abdominal injuries. Upon arrival at hospital, she undergoes a **CAT scan** which reveals a **subdural haematoma** in her brain. Emergency surgery is undertaken to relieve pressure on her brain. Her condition after surgery is monitored in the hospital's intensive care unit. When the neurologist in charge of Mary is satisfied that she is out of immediate danger, a referral is made to the hospital's speech and language therapy department. A SLT visits Mary, who has now been moved to the high dependency unit. She is alert and appears to be oriented to time and place. However, she is completely mute and cannot make use of gestures. A bedside assessment reveals comprehension of simple four- and five-word utterances. Mary indicates her understanding of these utterances through eye movements. Longer, more complex utterances do not receive a response. Mary is receiving non-oral feeding. The SLT continues to work with Mary while she is an inpatient in the head trauma rehabilitation unit in the hospital. Mary is discharged from hospital six months after admission. After discharge, the SLT continues to work with her as an outpatient, both on a one-to-one basis and during weekly group therapy with other head trauma clients.

The above scenario does not describe an actual case. However, it serves to illustrate the type of circumstances which may cause clients to access SLT services. Among other difficulties, Mary's head injury has resulted in impairments of communication and swallowing. The information presented above is limited. Yet, it is nonetheless clear that Mary has a **language disorder**, as she is unable to understand utterances beyond a certain

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level of linguistic complexity. She is also unable to produce or express utterances. Her difficulties with the expression of language are compounded by the presence of a **motor speech disorder** which prevents her from producing intelligible speech sounds. As well as a language and speech disorder, Mary has a disorder of swallowing or **dysphagia**. It is her inability to swallow safely that necessitates non-oral feeding. It is the responsibility of the SLT to assess and diagnose each of these disorders and to undertake an appropriate course of intervention. But the SLT's duty of care towards Mary does not end there. Mary has a husband and three teenage children, who are distressed by their inability to communicate effectively with her. The SLT has an important role to play in educating Mary's family members about her communication and swallowing problems. This educational role should include advice about the adjustments that they can make to facilitate communication with Mary including specific techniques which may make it easier for Mary to understand them.

So far, four roles of the SLT in the management of Mary's case have been identified: it is the role of the SLT to *assess*, *diagnose* and *treat* Mary's communication and swallowing disorders and to *educate* her family members about these disorders and what adjustments they can undertake in order to lessen their impact on communication. But the SLT is also performing three further roles which may not be so evident in the above scenario. The reason Mary has received SLT services during her stay as an inpatient in the hospital's head trauma rehabilitation unit is because of the SLT's role as an *advocate* of clients with communication disorders. It is through the role of advocate that the SLT has pressed the case for continued funding of SLT services against a backdrop of reduced healthcare spending. This role may bring the SLT into contact with health service managers and private medical insurers who need to be persuaded of the long-term benefits of SLT services to clients who sustain head trauma. As part of Mary's rehabilitation, she also participates in weekly group therapy with other head trauma clients. The intervention that is offered to these clients is the focus of a research study in which the SLT is the principal clinical investigator. In the role of *researcher*, the SLT aims to establish if group therapy can achieve significant improvements in the social communication skills of clients with head trauma. Finally, two junior therapists in the SLT department also participate in Mary's group therapy. It is the SLT's role to act as a *mentor* to these colleagues in order that they may acquire the

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clinical skills that are needed to work with this complex client group. All seven roles of the SLT are summarized in Table 1.1.

SLT Role	Description	Examples
Assessment	SLTs use a range of clinical tools to assess the speech, language, voice, fluency and swallowing abilities of clients. Assessment establishes if there is a need for intervention and creates a baseline against which progress in therapy can be charted.	The SLT can use **standardized tests** to assess the language skills of children (e.g. Clinical Evaluation of Language Fundamentals; Semel et al., 2003). Some forms of assessment must use specialist equipment (e.g. the use of **videofluoroscopy** to evaluate swallowing).
Diagnosis	SLTs use the results of assessment to arrive at a diagnosis of a client's communication or swallowing disorder. Internationally recognized diagnostic systems can be used to guide diagnosis (e.g. **Diagnostic and Statistical Manual of Mental Disorders**, DSM-5; American Psychiatric Association, 2013).	The SLT can use results from the Boston Diagnostic Aphasia Examination (Goodglass et al., 2001) to diagnose an adult with a specific **aphasia** syndrome following a **cerebrovascular accident** (stroke). The SLT can use criteria in DSM-5 to diagnose a child with social (pragmatic) communication disorder.
Treatment	SLTs use a range of interventions to treat communication and swallowing disorders. Most interventions aim to achieve measurable gains in speech and language skills. Where improvements in these skills are not possible (e.g. in clients with severe neurological impairment), use may be made of **augmentative and**	SLTs use different approaches, techniques and equipment to treat communication and swallowing disorders. Some interventions are indirect in nature and involve advice to parents and carers (e.g. environmental modifications proposed to the parents of a dysfluent child). Other interventions involve direct work with clients (e.g. phonological therapy in children with

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	alternative communication (AAC).	unintelligibility).
Education	SLTs undertake important educational work with clients, families, carers, other medical and health professionals and the general public. This educational work often occurs alongside intervention or it may be a stand-alone activity (e.g. an awareness-raising campaign among the general public about communication disorders).	Clients with **voice disorders** may need to be educated about the lifestyle factors that contribute to **dysphonia**. Spouses of clients with aphasia must receive education about this language disorder and its implications for communication. Carers and support workers of adults with **intellectual disability** require education and training in AAC (e.g. **Makaton**).
Advocacy	Due to their communication disability, children and adults with communication disorders require others to be advocates for them. The SLT performs an important advocacy role for these clients at local, regional and national levels.	The SLT may act as an advocate for the teenager with speech, language and communications needs in the criminal justice system. The SLT can act as an advocate for clients with progressive, neurological disorders who have limited communication at the end of their lives.
Research	SLTs also contribute to the knowledge base of their discipline by undertaking clinical research. This research role can be pursued through a programme of study (e.g. masters or doctoral studies) or as part of a therapist's routine clinical practice.	The SLT's research role can take many forms including the selection of clients according to study criteria, the implementation of a particular intervention, the recording and analysis of linguistic data, and the preparation of a journal article or book for publication.
Mentoring	The SLT also has a duty to mentor less experienced therapists and to act as a mentor to SLT students who are on clinical placements.	The SLT's mentoring role might involve regular meetings to discuss progress and concerns of junior colleagues, or observation of and feedback on clinical sessions in the case of SLT students on placements.

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Table 1.1: Roles of the speech and language therapist

Having established the roles of the SLT, it is now necessary to consider certain misconceptions about speech and language therapy. For the most part, these misconceptions exist among members of the public. However, somewhat surprisingly, they are also often found among other medical and health professionals. The three misconceptions which will be addressed in the rest of this section are: (1) SLT is a career for women only; (2) SLTs only work with children who have speech disorders; and (3) SLT is concerned with accent improvement and elocution. Although other 'myths' about SLT do exist, these misconceptions are the most commonly encountered mistaken beliefs about the profession. They are also some of the most harmful beliefs in that they can deter individuals from considering SLT as a career or clients from seeking a range of SLT services. It is hoped that the exposure of these misconceptions will go some way towards reducing their influence or even eliminating them altogether.

The misconception that SLT is a career for women only is explicable to some extent. Notwithstanding the growing participation of both genders in a range of occupations, it remains the case today that considerably more women than men pursue a career in SLT. Data from the Office of National Statistics in the UK shows that between April to June 2015, 21,000 people were employed as SLTs. Women accounted for 19,000 of these employees. By year end 2014, men comprised only 3.7% of the speech-language pathologists certified by ASHA. Speech Pathology Australia has approximately 6,000 practicing members. Of this number, 98% are women and only 2% are men. The predominance of women in the profession is in stark contrast to the predominance of men in the client groups that are assessed and treated by SLTs. Significantly more boys and men than girls and women have communication disorders such as **speech sound disorders**, **specific language impairment** and developmental **stuttering**, and males account for the majority of individuals with conditions such as **autism spectrum disorder** (ASD) and **attention deficit hyperactivity**

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disorder (ADHD). If for no other reason than that SLTs are not representative of the clients they serve, efforts should be taken to correct this gender imbalance.

Central to these efforts will be a better understanding of why men are not inclined to pursue a career in SLT. A study by Litosseliti and Leadbeater (2013) gives us some insight into widely held perceptions and beliefs which may discourage men from entering the profession. One influential factor is the perceived prestige, status and salary of the profession. A careers advisor and SLT teacher in this study remarked:

> 'A lot of my boys to be honest, they want to be engineers or they want to earn lots of money in the city' (careers advisor)

> 'I think, you know, that one of the contributing factors when men look at this as a profession could be the erm … although it's much better, is the career progress, the career structure and the pay-scales' (SLT teacher)

Other influential factors identified by Litosseliti and Leadbeater included the perception that SLT is 'women's work'. Women are perceived to be carers and nurturers and these are attributes which are associated with all the healthcare professions including SLT. There is also a general perception that women are better communicators than men, and so women are more suited to an occupation which assesses and treats people with communication disorders:

> 'I think there's the perception that women are more communicative than men whether it turns out to be more realistic […] communication and talking is always just thought of as a female thing' (female SLT)

Many of these perceptions were challenged by the careers advisors, SLT teachers and SLTs in Litosseliti and Leadbeater's study. Nevertheless, their presence is still sufficiently widespread to act as a significant disincentive to men to enter the profession. Until these perceptions can be more effectively challenged than it has been possible to achieve to date,

it seems almost certain that SLT will continue to be viewed as a career for women only. This will represent a loss not only for men who would find SLT a challenging and rewarding career, but also for certain male clients with communication disorders (e.g. in the criminal justice system) who might respond more favourably to the presence of male therapists.

SPECIAL TOPIC: The SLT workforce

SLT is widely perceived to be a 'white female' profession. This perception is borne out by the demographics of the SLT workforce. Figures from Health Workforce Australia (2014) confirm that SLT is a predominantly female profession. Between 1996 and 2011, females accounted for well over 90% of the workforce:

1996 (96.7% female)	2001 (97.1% female)
2006 (97.2% female)	2011 (97.5% female)

The workforce in the UK and US is also predominantly female. In September 2013, the SLT workforce in England was 2.5% male and 97.5% female (Health and Social Care Information Centre, 2014). By the end of 2015, males accounted for 3.7% of speech-language pathologists who were members of the American Speech-Language-Hearing Association. This pattern is replicated in the number of males enrolled in communication sciences and disorders courses at university. In the academic year 2014-2015, some 36,498 undergraduate students were enrolled in these courses in the US (Council of Academic Programs in Communication Sciences and Disorders & ASHA, 2016). Only 4.8% of these students were male. To the extent that most SLT training places are also occupied by women, it appears unlikely that the gender imbalance of the profession will change any time soon.

There is little ethnic diversity in SLT. Most members of the profession are white. By year end 2015, 7.8% of ASHA members belonged to a racial minority. This

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compared with 27.6% of the US population, according to data from the 2010 Census. In 2011, only 11 of 5,296 speech pathologists in Australia had Aboriginal and Torres Strait Islander status (Health Workforce Australia, 2014). Reasons for the under-representation of ethnic minorities in the SLT workforce were examined by Greenwood et al. (2006). These investigators examined attitudes towards, and awareness of, SLT in 651 school and college students who were close to selecting degree courses. Among ethnic minority students there was a lack of awareness that SLT is a degree course. These students also placed greater importance on studying for a degree, a profession and a scientific career, and were more influenced by a career's prestige and a high salary.

Age is another important demographic feature of the SLT workforce. Knowledge of the age profile of the profession is vital to workforce planning. For example, if a large proportion of the workforce is close to retirement age, it may be necessary to increase the number of SLT training places. In 2011, 6.8% of speech pathologists in Australia were aged 55 years and older (Health Workforce Australia, 2014). Currently, the age profile of speech-language pathologists in the US is evenly distributed, as demonstrated by the following data from ASHA for year-end 2015:

34 and younger (27%) 35 to 44 (29%) 45 to 54 (21%) 55 and older (24%)

The SLT workforce in the UK is relatively young. A large proportion of SLTs who work in the National Health Service are in their early 30s. Only 1.9% of the workforce is 60 or older. This indicates either an early retirement age or older SLTS choosing to work outside the National Health Service (Centre for Workforce Intelligence, 2014).

The second misconception about SLT – that SLTs only work with children who have speech disorders – is related to the first misconception in that a perceived child-caring role acts as a disincentive to men to pursue a career in SLT. The roots of this second misconception are to

a large extent historical in nature. According to Duchan (2011), most histories of speech pathology in the US place the origins of the profession around 1925. At the same time, Duchan remarks, a number of influential American books were published. These books included Edward Wheeler Scripture's book *Stuttering and Lisping* (Scripture, 1912), which was published again 11 years later under the title *Stuttering, Lisping, and the Speech of the Deaf* (Scripture, 1923), and a book by Margaret Gray Blanton and Smiley Blanton entitled *Speech Training for Children* (Blanton and Blanton, 1920). The focus of both volumes is on children with speech disorders, as these comments from the preface of Scripture's text indicate: 'This book has been prepared to meet the needs of physicians and teachers; both are constantly confronted with the problem of what is to be done with a lisping or a stuttering child' (1912: vi). (Lisping is Scripture's term for an **articulation disorder**.) Its historical origins aside, the misconception that SLTs only work with children with speech disorders still persists to the present day.

In section 1.4, the diverse clients who are assessed and treated by SLTs will be examined in more detail. But in order to demonstrate just how limited a view of the work of SLT this second misconception is, it will serve us to give some thought to the different conditions which are assessed and treated even just by paediatric SLTs. Speech disorders are only one of the ways in which communication can be impaired in children. Children may have language disorders such as specific language impairment. They may have voice disorders such as **puberphonia**. **Fluency disorders** such as stuttering and **cluttering** are managed by paediatric SLTs. **Conductive hearing loss** and **sensorineural hearing loss** also come under the purview of SLT. Aside from communication disorders, paediatric SLTs also assess and treat children with swallowing disorders. In the 2014 Schools Survey conducted by the American Speech-Language-Hearing Association (2014), SLPs were asked to respond to the following question: Indicate how many students you serve in each of the following areas. Across all facility types, the mean number of students served in each intervention area is indicated in Table 1.2:

Intervention area	Number of students

Articulation/phonological disorders	20.5
Auditory processing disorder	6.9
Autism spectrum disorders	8.5
Childhood apraxia of speech	2.9
Cognitive-communication disorders	9.9
Dysphagia (swallowing/feeding)	2.6
Fluency disorders	2.5
Hearing loss	2.9
Language disorders: pragmatics/social communication	11.0
Language disorders: semantics, morphology, syntax	22.1
Nonverbal, AAC	4.7
Reading and writing (literacy)	14.6
Selective mutism	1.3
Traumatic brain injury	1.0
Voice or resonance disorders	1.5

Table 1.2: Number of students (mean) by

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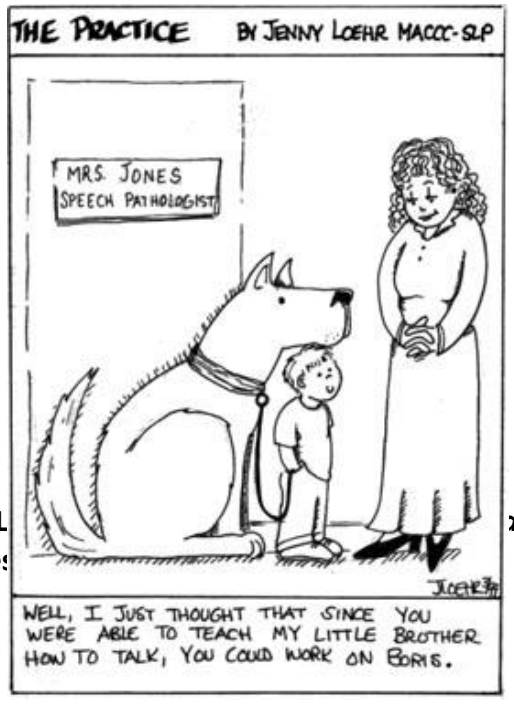
intervention area served by speech-language pathologists in ASHA's 2014 Schools Survey

Table 1.2 shows that taken together, speech disorders only account for a minority of the clients who are served by school SLPs in the US. There is, therefore, no basis to the claim that SLTs work only or even mainly with children who have speech disorders.

It is also not true to characterize the work of SLTs as only or even mainly undertaken with children. SLTs work with clients of all ages. This can include babies with swallowing problems, preschool children with speech sound disorder, school-age children with specific language impairment, teenagers with stuttering, young adults with motor speech disorders, older adults with aphasia, and elderly people with **cognitive-communication disorders** related to **dementia**. SLTs assess and treat communication and swallowing disorders across the entire lifespan. Figures from the 2015 SLP Health Care Survey Summary Report (American Speech-Language-Hearing Association, 2015) reveal that, if anything, speech-language pathologists in the US spend more clinical time working with adult clients. In this survey, respondents were asked: Of the time that you spend providing clinical services, approximately what percentage is spent with the following age groups? Across all facility types, the mean percentages were 16.1% for infants and toddlers, 15.8% for preschool children, 14.5% for school-age clients and 53.6% for adult clients. The idea that SLTs treat children for the most part is not supported by the findings of this ASHA survey.



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The third and final misconception which we will consider is that SLT is concerned with accent improvement and elocution.[1] As with the second misconception, this view of SLT has a historical basis. Duchan (2011) describes how a number of elocutionists who practiced in the early 19th century saw communication disorders as within their scope of interest and practice. In his book *Analysis of the Principles of Rhetorical Delivery as Applied in Reading and Speaking*, the elocutionist Ebenezer Porter remarked of **stammering** as follows:

> 'As directly connected with articulation, a few remarks on impediments seem to be necessary. Stammering may doubtless exist from such causes, and to such a degree as to be insurmountable; though in most cases, a complete remedy is attainable by the early use of proper means' (1831: 32).

The elocutionist movement in the UK, which began around 1750, also had an interest in communication disorders. Duchan (2011) describes how one British elocutionist, James Hunt (1833-1869), worked to cure stammering and established his own practice in speech and voice disorders. Elocution is still widely practiced today. But while regulatory bodies such as the Health and Care Professions Council in the UK prevent its practitioners from claiming to offer speech and language therapy, there has been no way of preventing the perception in people's minds that SLT is practicing elocution. This perception of the work of SLTs is well entrenched and still persists today. It is not unusual for SLTs to be asked to work with clients for no other reason than that they have a socially undesirable accent. The following scenario is, unfortunately, not uncommon:

> 'Lee Dein, a speech and language therapist from north London, refuses to treat accents. "Six months ago, a very posh chief executive telephoned and asked me to take on one of his employees who had a Birmingham accent. It was the first

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> and last time I dealt with accents. During the fourth session, the woman broke down. She didn't see why she should be treated as if she had a speech problem and I agreed. The more people who treat accents in this way, the more it will be considered OK to discriminate against them."' ('Oi, you! Read this', *The Guardian*, 29 September 1999).

In the UK, the Shropshire paediatric speech and language therapy service has attempted to address this misconception directly by listing 'elocution and working on accents' as one of the services it does *not* offer to clients on its website. Another manifestation of this misconception is that individuals who are interested in pursuing a career in SLT must speak with a certain accent in order to be considered suitable candidates for the profession. The following comment from an online discussion forum reflects this view:

> 'I am interested in learning more about speech pathology as a career, and I have a question. This may be kind of weird to ask, but do all speech pathologists need to have perfect "standard" accents and no speech problems themselves? For instance, if someone from the US had a very strong southern accent, would this be a major problem if he or she chose to study speech pathology and pursue it as a career?' (Comment posted on *The Student Doctor Network* on 21 December 2012)

As with the other misconceptions examined in this section, the view that SLT is concerned with elocution and accent improvement is not only a misrepresentation of the work of SLTs but is also detrimental to recruitment to the profession.

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KEY POINTS: What is speech and language therapy?

- The most widely recognised roles of the SLT are the *assessment*, *diagnosis* and *treatment* of clients with communication and swallowing disorders.
- Other roles of the SLT include the contribution of knowledge to the discipline as a *researcher*, an *advocate* for those with communication disorder who cannot represent their own needs and views, an *educator* of clients and their families as well as the public about communication disorders, and a *mentor* of less experienced clinicians and student therapists.
- Misconceptions about SLT are commonplace in the general public and among other health professionals. They need to be exposed and resisted as they can deter individuals from pursuing a career in SLT, and clients from seeking SLT services.
- Three common misconceptions are that SLT is a career for women only, SLTs only work with children who have speech disorders, and SLT is concerned with accent improvement and elocution.

1.2 Why study speech and language therapy?

Beyond leading to a rewarding career, the study of SLT is important for other reasons. Chief among them is that individuals with communication and swallowing disorders can experience considerable personal distress, social devaluation and occupational disadvantage. The interventions that SLT is able to offer these clients can mitigate many of these adverse consequences. These interventions can only be competently and effectively delivered by clinicians who have pursued a course of study in SLT at university or college. In addition to reducing the different impacts of communication and swallowing disorders, there is another reason why SLT should be considered a priority for academic and clinical

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study. The costs to society of communication and swallowing disorders are very large and growing. For the most part, these costs are measured in reduced economic productivity when individuals with these disorders are unable to work. But as well as the costs of a lack of workplace activity, there are also additional costs incurred when unemployed adults with communication and swallowing disorders receive state support for them and their families. Accordingly, there is a significant economic imperative for countries to invest in programmes of study which produce clinicians who can offer SLT services. In this section, we examine the impact of communication and swallowing disorders on the individuals who have these disorders. We also consider the economic case for prioritising SLT as an area of academic and clinical study.

The impact of communication and swallowing disorders can be characterized in six different, but interrelated ways. The **psychological impact** of these disorders can include depression, anxiety, low self-esteem or even suicidal ideation related to a communication disorder. This type of impact may not arise immediately after the injury, illness or disease that causes a communication disorder but it can persist for many months and years after the onset of a disorder (e.g. depression in adults with aphasia). The **social impact** of communication and swallowing disorders may be measured in various ways. It can include reduced friendship networks in adults who sustain a **traumatic brain injury** (TBI), victimisation and bullying of children with specific language impairment, avoidance of certain social situations in teenagers who stutter and social withdrawal in adults with a cognitive-communication disorder. For the purposes of clinical study, psychological and social impacts of communication and swallowing disorders are often examined alongside each other in investigations of the psychosocial impact of these disorders. This impact has been extensively investigated in a range of clients with communication disorders (see chapter 5 in Cummings (2014a) for discussion).

The **behavioural impact** of communication and swallowing disorders is most often addressed in children who may display challenging behaviours in the classroom or at home as a result of a speech or language disorder. However, adults with communication disorders may also display hostile or aggressive behaviours that are related to their inability to

communicate effectively. When problematic behaviours escalate into antisocial behaviour in the form of damage to property and harm to individuals, clinicians talk about the **forensic impact** of communication disorders. It is through this type of impact that children and adults with communication disorders are brought into contact with the criminal justice system (RCSLT, 2017). Many communication disorders can compromise learning and academic performance. The **academic impact** of a communication disorder may be measured in the number of qualifications achieved at different stages of formal education. Clearly, this particular impact is related to the **vocational impact** of communication disorders, especially in children, as poor academic qualifications directly limit the type of occupations that an individual can pursue. However, the adult who sustains a **stroke** may also experience the vocational impact of a communication disorder when he or she is unable to return to work on account of aphasia.

To illustrate these different impacts of communication disorders, consider the following scenario. Paul is a 7-year-old boy who has been diagnosed with significant expressive and receptive language delay. He attends a mainstream school where he receives SLT three times a week. Paul's teacher has observed a number of social and behavioural difficulties. His poor expressive language skills have created problems for him in his ability to initiate and maintain social interactions with other children in his class. When these interactions are unsuccessful, he responds with frustration and sometimes aggressive behaviour towards other children. His academic attainment is a cause of concern as he is performing well below the class average in spelling and reading skills. At secondary school, Paul continues to experience academic difficulties. The school psychologist reports that he displays low self-esteem and has limited friendship networks in comparison to the other pupils. He has also been disciplined for smoking on school premises and can display temper outbursts in class when he is struggling with academic tasks. At 16 years of age, Paul achieves only three passes in his GCSE[2] subjects. He decides to undertake a vocational qualification in construction at his local college. While at college, he begins to engage in antisocial behaviour in the company of other boys on his course. This involves the use of illicit drugs which brings him into contact with a juvenile court in the criminal justice system. His convictions for drug use make it difficult for him to secure employment in construction.

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Although this is not an actual case, it resembles very closely the experiences of many children, and particularly boys, who have speech, language and communication needs. It is possible to identify all six of the impacts that were described above. These impacts arise directly and indirectly from Paul's expressive and receptive language delay. Paul's communication disorder appears to have a psychological impact in that the school psychologist has identified that he exhibits low self-esteem. The social impact of his communication disorder is manifested both in Paul's difficulty engaging in social interactions with other children and in his limited friendship networks when he attends secondary school. There is also a clear behavioural impact of Paul's language difficulties. When he is unable to initiate social interaction with other children, he can sometimes display aggressive behaviour. He is also prone to temper outbursts in class when he is confronted with challenging academic tasks. As Paul passes through secondary school and into college education, there are the first signs of a forensic impact of his communication disorder in the form of rule transgressions and other antisocial behaviour. He is disciplined for smoking on school premises and, when he attends college, he has contact with a juvenile court on account of illicit drug use. There is a considerable academic impact of his language difficulties in that he is well below the class average in spelling and reading and only emerges with passes in three subjects at GCSEs. Finally, Paul's limited academic attainment finds him pursuing a non-professional vocational role, with even that placed in jeopardy by his convictions for drug use.

To recap, a key reason for studying SLT is that the interventions it provides can go some way towards mitigating these different impacts of communication disorders. But this is not the only reason why individuals and societies should place emphasis on the study of SLT. There is also a strong economic imperative for studying SLT. Communication and swallowing disorders can cause reduced economic productivity. This is not just the case for the individuals who have these disorders but also for family members, many of whom leave employment to care for these individuals. In 2000, the economic cost of communication disorders in the US was estimated to be between $154 billion and $186 billion per year, which is equal to 2.5% to 3% of the Gross National Product (Ruben, 2000). The estimated

lifetime costs in 2003 dollars are expected to total $2.1 billion for persons born in 2000 with hearing loss (RTI International and CDC, 2004). Most of these costs will come from lost wages due to inability or limited ability to work. SLT makes a significant contribution towards tackling these massive costs of communication disorders to the economies of countries. A report commissioned by the Royal College of Speech and Language Therapists in the UK and published in 2010 found that SLT across aphasia, specific language impairment and autism delivers an estimated net benefit of £765 million to the British economy each year (Marsh et al., 2010). If the impact of communication disorders alone does not persuade the reader of the need to study SLT, then surely this economic argument succeeds in making the case.

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KEY POINTS: Why study speech and language therapy?

- Communication and swallowing disorders have adverse consequences for all aspects of an individual's life and functioning.
- These consequences are characterized in terms of a number of impacts which SLT interventions can mitigate. These impacts are psychological, social, behavioural, forensic, academic and vocational in nature.
- Psychological impacts may take the form of depression, anxiety and low self-esteem, while social impacts include social isolation and withdrawal and reduced friendship networks.
- Behavioural impacts include disruptive and challenging classroom behaviour in children and aggressive behaviour in adults with communication disability in the presence of dementia. If there is rule transgression, damage to property and harm to individuals, the communication disorder has a forensic impact.
- Academic impacts of communication disorders include poor performance in reading and spelling and limited school and college qualifications. Poor academic attainment limits the occupational roles that are available to individuals with communication disorders. Reduced employment opportunities are a vocational impact of these disorders.
- There is an economic imperative to study SLT as the interventions that SLT can offer help to reduce the massive costs of communication disorders. These costs are incurred in several ways. There is reduced economic productivity in individuals with communication and swallowing disorders. There needs to be state support of these individuals and their dependents. Family members may leave employment to care for individuals with communication and swallowing disorders.

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1.3 What do SLT students need to learn?

The knowledge and skills that SLT students must acquire in order to practice competently and safely are very wide-ranging in nature. They include knowledge of a number of linguistic, medical and scientific disciplines. In order to characterize communication breakdown in children and adults, SLTs must understand, and accurately apply, terms and concepts in each of the following linguistic disciplines: phonetics; phonology; morphology; syntax; semantics; pragmatics; and discourse. In isolation, knowledge of these linguistic disciplines cannot achieve an accurate characterization of a communication disorder. SLTs must additionally understand the medical causes of a communication disorder (**aetiology**), how prevalent the disorder is (**epidemiology**), the presence of any malformation of the organs of speech (**anatomy**) and any impairment of their movement or function (**physiology**). Knowledge of other medical disciplines is needed in order to understand the clinical features of mental illnesses such as **schizophrenia** (**psychiatry**), the neurological basis of motor speech disorders like **dysarthria** (**neurology**) and the vocal pathologies that can cause dysphonia (**otolaryngology**). This extensive linguistic, medical and scientific knowledge can only be pressed into action by SLTs who also have a range of clinical skills. These skills include technical abilities that are required to undertake speech and language analysis and to operate instruments and equipment in assessment. These skills also include clinical problem-solving and decision-making in everything from performing a differential diagnosis of a speech disorder to deciding when it is appropriate to discharge a client from therapy. In this section, we examine in brief the knowledge and clinical skills that students of SLT must learn in preparation for a more detailed treatment of these topics in later chapters.

Students of SLT will tell you that they spend a lot of time taking modules in linguistics. And so they should. Linguistics is well and truly a cornerstone of SLT. It is simply not possible to understand the **hypernasal speech** of a child with a **cleft lip and palate** in the absence of knowledge of speech sound production in **phonetics**. **Phonology** is used to characterize the sound and syllable simplifications (e.g. **stopping**, **consonant cluster reduction**) that occur in the speech of normally developing children and in children with **phonological disorders**.

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SLTs must understand **morphology** and **syntax** in order to characterize the morphosyntactic deficits of children with specific language impairment (e.g. *He fall off*) and the limited expressive syntax of **agrammatism** in aphasia. **Semantics** is used to characterize a range of deficits in adults with **Down syndrome** including impaired knowledge of semantic fields (e.g. *fruit* and *transport*) and **lexical relations** between words such as hyponymy (e.g. *bird – eagle*) and antonymy (e.g. *hot – cold*). To understand why children and adults with ASD struggle to understand sarcastic utterances and figurative language such as **metaphors** (e.g. *The children were angels*) and **idioms** (e.g. *Jack spilled the beans*), SLTs must have a sound knowledge of each of these aspects of **pragmatics**. Poor **cohesion** and **coherence** in the narratives of adults who sustain a traumatic brain injury and the egocentric language of adults with right-hemisphere damage are only meaningfully explained by SLTs who are well versed in **discourse**. Each of these linguistic disciplines will be explored further in chapter 2.

Alongside modules in linguistics, students of SLT are equally committed to the study of a number of medical and scientific disciplines. The structures that produce speech and voice and that make hearing possible are studied in anatomy while the function of these structures is examined in physiology. It is one thing to know the different palatal clefts that can occur in a child (anatomy), and quite another thing to know how clefting can affect the function of the **velopharyngeal port** (physiology). Knowledge of the **central nervous system** and **peripheral nervous system** in neurology is the basis upon which SLTs understand language disorders such as aphasia and motor speech disorders like dysarthria. Otorhinolaryngology (or ENT medicine) is the medical discipline that SLTs draw upon to understand voice disorders and the organic conditions that can cause conductive and sensorineural hearing loss. SLTs must also understand methods of assessment in **audiology** (e.g. **pure tone audiometry**) and techniques that are used to achieve **amplification** for clients with different types of hearing loss. The medical discipline of **gastroenterology** is of increasing relevance to SLTs as the link between **gastroesophageal reflux disease** and **laryngeal cancer** has become increasingly clear. With the exception of disorders such as specific language impairment, the epidemiology of communication and swallowing disorders is still relatively under-investigated. Yet, knowledge of the incidence and prevalence of these disorders is important both for the planning of SLT services and for

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what it can reveal about the aetiology of these disorders. Each of these medical and scientific disciplines will be examined further in chapter 3.

SLT students must also study a number of psychological disciplines alongside linguistic and medical disciplines. Clinicians must know the stages at which normally developing children achieve certain milestones in order to judge if a particular child's development deviates markedly from the normal pattern. These milestones, which include motor and cognitive achievements, are investigated within **developmental psychology**. Paediatric SLTs frequently work alongside **educational psychology** services. It is educational psychologists who undertake assessments of intellectual functioning and **dyslexia** in children. Given the proximity of these areas to the remit of SLT, students of SLT must have a sound knowledge of the work of educational psychologists. **Cognitive psychology** is also studied by students of SLT. Cognitive psychological theories of language processing have influenced certain diagnostic tools and interventions used by SLTs. For example, a cognitive psychological approach is used in the assessment and intervention of adult acquired aphasia (e.g. Psycholinguistic Assessments of Language Processing in Aphasia (PALPA) Kay et al., 1992; Whitworth et al., 2005). **Neuropsychology** and **clinical psychology** are also important psychological disciplines for SLTs. The language and communication difficulties of clients who sustain a TBI are explained in large part by **executive function deficits** in areas such as attention, planning and working memory. It is neuropsychologists who assess these cognitive deficits. Clinical psychologists work alongside SLTs in the management of clients with voice disorders and psychiatric conditions. These various branches of psychology are examined further in chapter 4.

Finally, the knowledge that is gleaned from these linguistic, medical and psychological disciplines is insufficient by itself to produce SLTs who are able to assess and treat clients with communication and swallowing disorders. A number of clinical skills must also be acquired by students of SLT. These skills include the technical abilities that are needed to undertake phonetic transcription and perform linguistic analysis. Technical abilities are also required to use equipment appropriately during assessment and treatment. For example, technical abilities are needed to use a **nasometer** safely and effectively to supplement

perceptual assessments of nasality and to use **electropalatography** to modify tongue-palate contact during articulation therapy. Other clinical skills are more cognitive than technical in nature. SLTs must use clinical problem-solving skills to establish why a particular intervention was not effective with a client when it is known to be effective in other clients with similar communication impairments. Problem-solving skills are also used by SLTs to address issues which may be reducing a client's compliance with an intervention or a spouse's failure to make communicative adjustments when conversing with her aphasic partner. Decision-making is another key cognitive clinical skill. SLTs must make decisions about which standardized test to use to examine a child's phonology and about which group of sounds to target first in phonological therapy. Decisions must also be made about the intensity of therapy (once or twice weekly), the mode of therapy (individual versus group therapy) and when to terminate therapy. Each of these clinical skills must be developed by students of SLT alongside knowledge of linguistic, medical and psychological disciplines.

KEY POINTS: What do SLT students need to learn?

- Linguistic disciplines form a key part of the knowledge base of SLT. These disciplines are phonetics, phonology, morphology, syntax, semantics, pragmatics and discourse.
- Medical and scientific disciplines also underpin the work of SLT. Included among these disciplines are anatomy and physiology, neurology, psychiatry, and otorhinolaryngology (ENT medicine).
- Several psychological disciplines are also relevant to SLT. They include developmental psychology, educational psychology, cognitive psychology, neuropsychology and clinical psychology.
- Knowledge of disciplines sits alongside clinical skills in SLTs. These skills include a range of technical abilities as well as cognitive clinical skills in areas such as problem-solving and decision-making.

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1.4 SLT and clients with communication and swallowing disorders

So far, there has been little direct examination of clients who have communication and swallowing disorders. These clients and their disorders will be the focus of this section. In addressing these disorders, a distinction will be made between a developmental and an acquired communication and swallowing disorder. Developmental communication and swallowing disorders have their onset during the **developmental period**, while acquired disorders arise after the time when speech, language and swallowing skills are normally acquired. According to this distinction, it is possible for a child to have an **acquired communication disorder** (e.g. a teenager with dysarthria following a TBI) and for an adult to have a **developmental communication disorder** (e.g. an adult who has stuttered since early childhood). A second distinction to be examined in this section is that between an expressive and a receptive language disorder. An **expressive language disorder** arises when a child or adult has difficulty formulating spoken and/or written language. When there is an impairment of the comprehension of language, SLTs diagnose a **receptive language disorder**. Although it is possible for a child or adult to have only one of these language disorders (e.g. expressive SLI), clients with language disorders often have a combination of receptive and expressive impairments. The third distinction to be addressed is that between a speech disorder and a language disorder. For most people, any impairment of communication is straightforwardly a speech disorder. However, when SLTs talk about a speech disorder, they use this label to refer only to a breakdown in motoric (non-symbolic) aspects of communication. All three distinctions will be examined subsequently.

As a route into these distinctions, let us consider the following scenarios:

> (A) Sally is 15 years old. Six months earlier, she sustained a severe TBI in a road traffic accident. Following the accident, she had emergency neurosurgery to remove a subdural haematoma and to reduce intracranial pressure. When Sally emerged from her coma, she was completely mute and disoriented to time and place. Her understanding of even short, simple sentences was impaired. After a

number of weeks, Sally's **mutism** had resolved and her speech was dysarthric. Her understanding of language was still impaired but displayed signs of improvement. Two months after surgery, Sally was able to answer a set of 30 yes-no questions with 100% accuracy.

(B) Sammy is 45 years old. He has aphasia following a cerebrovascular accident which has caused a lesion in his left cerebral hemisphere. His expressive language is severely impaired as he is only able to produce one- or two-word utterances. His understanding of language is superior to his expression of language but is also impaired. Sammy is receiving non-oral feeding because his swallowing has been assessed to be unsafe. When Sammy was at school, he was seen by a SLT for the treatment of **childhood apraxia of speech**. His speech at school was highly unintelligible and limited his social interactions with his peers.

(C) Billy is 7 years old. He was born prematurely and had a number of medical complications in the neonatal period (e.g. **cytomegalovirus**). At six months old, Billy developed **meningitis** which caused sensorineural hearing loss. His speech and language development are delayed. The SLT assesses Billy's speech which is moderately dysarthric. His unintelligibility limits social interaction with his peers. The teacher reports that Billy does not understand instructions in class. Recently, Billy has displayed hoarseness which has necessitated a referral to the ENT department of his local hospital. A direct **laryngoscopy** reveals bilateral **vocal nodules** and **hyperadduction** of the vocal folds.

In scenario (A) Sally has both a speech disorder and a language disorder. Her language disorder is receptive in nature – she has impaired understanding of short, simple sentences – although her motor speech difficulties are probably masking a severe expressive language disorder also. Sally has the speech disorder dysarthria. Because the onset of her speech and language disorder occurred when Sally was a teenager, that is, after the point at which fully mature speech and language skills are acquired, they are both acquired communication disorders. In scenario (B) Sammy has aphasia which has compromised his expressive and

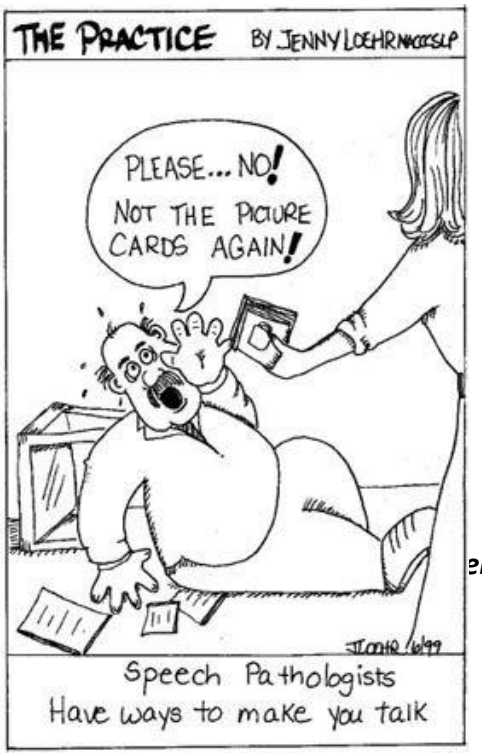
receptive language. He also has a swallowing disorder (dysphagia) following his cerebrovascular accident. Because his language and swallowing skills were intact prior to his stroke, Sammy has an acquired communication disorder and swallowing disorder, respectively. However, his difficulties do not end there. When Sammy was at school, he was diagnosed with childhood apraxia of speech. This speech disorder has its onset in the developmental period and is, therefore, a developmental communication disorder. In scenario (C) Billy has a hearing, speech, language, and voice disorder. His sensorineural hearing loss is related to meningitis which he developed at six months of age. This is within the developmental period and so Billy's hearing loss is a developmental communication disorder. Two other sequelae of meningitis, the speech disorder dysarthria and a receptive language disorder (Billy does not understand instructions in class), are also developmental communication disorders. Additionally, Billy has a voice disorder which is related to the presence of organic lesions (vocal nodules).

In these scenarios, we have seen examples of speech, language, hearing, voice and swallowing disorders. Among these disorders we have also distinguished between developmental and acquired communication and swallowing disorders and receptive and expressive language disorders. But we can say more about clients with communication disorders. In some language disorders there is a primary impairment of language in that language is not impaired in consequence of other factors. An example of a primary impairment of language is **pragmatic language impairment** where pragmatic difficulties are not related to any linguistic deficit even though such deficits may exist. In other language disorders there is a secondary impairment of language in that cognitive and linguistic factors account for the language disorder – the language disorder is secondary to these factors. In so-called cognitive-communication disorders language difficulties are related to the presence of cognitive deficits. This occurs in TBI, **right-hemisphere damage** and the dementias where executive function deficits and other cognitive impairments (e.g. visual-perceptual deficits) give rise to language difficulties. But linguistic factors can also be a cause of secondary language disorders. For example, adults with aphasia may not be able to use the syntactic and semantic structures that are needed to produce **indirect speech acts** (e.g. *Can you open the window?*) and other non-literal forms of language. Children with specific

language impairment may lack the linguistic structures (e.g. conjunctions) that are needed to achieve cohesion in a narrative. In both these cases, the pragmatic and discourse disorders of these clients are secondary to structural language impairments. In order to illustrate this final distinction, consider the following scenario:

> (D) Alice is 65 years old and has **Alzheimer's dementia**. As her memory and other cognitive abilities have declined, so too have her language skills. Although her phonological and syntactic skills are still relatively intact, her semantic and pragmatic abilities are significantly disrupted. Alice is unable to understand idioms, metaphors and other non-literal forms of language. She often fails to appreciate **humour** in conversation and misinterprets sarcastic and other remarks. Typically, she tends to veer towards a literal interpretation of these linguistic utterances. Moreover, her comprehension of idioms appears to correlate with scores on tests of executive function.

The question we want to address is: Does Alice have a primary language and communication disorder or a secondary language and communication disorder? Given that her language deterioration occurs in the context of significant decline in her cognitive skills, it is clear that Alice has a secondary language and communication disorder. Like clients with TBI and right-hemisphere damage, Alice has a cognitive-communication disorder. As we begin to learn more about the cognitive basis of cognitive-communication disorders, it appears likely that increasingly sophisticated classifications of these disorders will begin to emerge.



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GROUP EXERCISE: Applying clinical distinctions

In a small group, make a list of as many people as possible with communication disorders that you have encountered at different points in your life. Your list may include children in your class at school who stuttered or had hearing loss. It may also include a sibling who had speech disorder related to cleft palate or a grandparent with language problems as a result of a stroke. For each disorder that you identify, indicate if it is a developmental or an acquired communication disorder. Then also indicate if it is a speech, language, hearing, voice, or fluency disorder. To check that your understanding of the disorders on your list is accurate, report each one and its classification to the rest of the class in the presence of an instructor.

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KEY POINTS: SLT and clients with communication and swallowing disorders

- SLTs use a number of distinctions to help them talk in a precise, meaningful way about communication and swallowing disorders. Four such distinctions are: *developmental* versus *acquired* communication disorders; *receptive* versus *expressive* language disorders; *speech* versus *language* disorders; and *primary* versus *secondary* language and communication disorders.
- If a communication disorder has its onset in the developmental period, it is described as a developmental communication disorder. If the onset of a disorder occurs after speech and language skills have been acquired, a communication disorder is acquired in nature.
- In an expressive language disorder, the production or expression of language is impaired. In a receptive language disorder, the understanding or comprehension of language is impaired.
- In a speech disorder, motoric or non-symbolic aspects of communication are compromised (i.e. **motor speech programming** and **motor speech execution**). In a language disorder, symbolic aspects of communication are disrupted (i.e. **language encoding** and **language decoding**).
- In a primary language or communication disorder, language is not impaired in consequence of other factors. In a secondary language or communication disorder, language is impaired on account of the presence of cognitive and linguistic deficits.

1.5 SLT and families and carers

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Children and adults with communication and swallowing disorders do not exist in social isolation from others. They are parents, siblings, children and spouses to other people. These people are integral to the work of SLT. In this section, we consider several, important roles of families and carers in SLT. First, family members and carers are a vital source of information about clients with a communication or swallowing disorder. This information might include a child's developmental history, reports about how an adult with dysphagia copes with food of different textures at home, or information about how a client with aphasia communicates in a range of social settings. Second, family members and carers can act *in loco* of therapists by implementing interventions outside of the clinic. This might involve undertaking semantic exercises with the adult who has aphasia or ensuring that the dysfluent child uses stretched or smooth speech at home. Third, family members and carers may be directly targeted in a SLT intervention. The spouse or other conversational partners of an adult with aphasia may be directly instructed in how their own conversational behaviours can be modified to facilitate communication with the adult. Fourth, family members and carers may need to be trained in the use of specialist equipment, technology and techniques. Children with Down syndrome will gain little from the use of Makaton signs and symbols if all relevant others in their environment – parents, siblings, teachers and carers – receive no training in the use of the Makaton programme. Fifth, family members and carers can provide much needed psychological and emotional support to clients. This is necessary in order to ensure compliance with SLT intervention and the continued use of techniques after discharge from therapy. These five roles will be examined further in the rest of this section.

SLTs bring vast clinical expertise to the assessment and treatment of clients with communication disorders. But this expertise can amount to very little in the absence of the type of information that only family members and carers can provide. It is these individuals who observe a client's communicative functioning in contexts that cannot be readily accessed by clinicians. The information that can be obtained about a child's or adult's ability to communicate at home, at school or in the workplace can substantially extend the spatial reach of clinicians. But aside from a spatial dimension, there is an important temporal function served by the information that only family members and carers can provide. It is

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not uncommon, for example, for adults with neurodegenerative conditions such as motor neurone disease to experience some deterioration of speech later in the day when fatigue is most acute. Through their continual contact with clients, spouses and carers are best placed to report on the effects of fatigue and other factors (e.g. daily activities, illnesses) on communication skills. This temporal function can, of course, be extended beyond the changes in communication observed in a 24-hour period to include the observation of communication skills over a period of months or years. The development of communication skills in young children can often be reported by parents in considerable detail during the taking of a child's history. Also, the spouse of an adult with Alzheimer's dementia may be able to describe subtle changes in this client's communication skills long before the point where a clinical diagnosis is made. In short, family members and carers can extend the spatial and temporal reach of clinicians into contexts and time periods that are otherwise inaccessible to SLTs.

Another key role of family members and carers is to undertake interventions *in loco* of therapists. It should be emphasized that this role does not see family members and carers replacing clinicians. It is still SLTs who must decide on the nature of a particular intervention and on how an intervention may be best implemented. Rather, this role recognizes that the required treatment dose in many communication disorders exceeds that which can be delivered even in well-resourced SLT centres. Highly motivated and well-informed parents can prove to be a considerable asset in the treatment of children with speech sound disorders where continual modelling, feedback and articulatory exercises are required to bring about significant speech gains. An aphasia intervention which is administered for 30 minutes once or twice weekly is unlikely to secure any improvement in a client's communication skills if a spouse or other family member is not supplementing efforts in the clinic with additional input at home. As well as increasing the amount of treatment input, family members and carers can also plan that input to occur at times that are likely to be maximally effective. A scheduled clinic appointment cannot always take account of the time of day when a client is likely to be most receptive to speech and language exercises. Of course, the increased treatment dose that family members and carers can provide is only possible under certain conditions. Relatives and carers must be educated about a client's

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communication difficulties and trained in specific intervention techniques. Clinicians must be prepared to impart certain knowledge and skills to relatives and carers and engage in regular monitoring of a client's progress outside of the clinic via telephone consultations or other means. This can be and is successfully achieved in many cases.

As well as supplementing clinic-based treatment, family members and carers may also be directly targeted in SLT intervention. This role of relatives and carers acknowledges that communication involves two or more participants and that a client's communication disorder may be most effectively addressed by modifying the conversational behaviour of other participants. This approach is used in the treatment of clients with aphasia. Two interventions of this type which are based on **conversation analysis** are the Conversation Analysis Profile for People with Aphasia (Whitworth et al., 1997) and Supporting Partners of People with Aphasia in Relationships and Conversation Analysis (Lock et al., 2001). It has been widely documented among clients with aphasia that opportunities for communication are frequently constrained by the behaviour of conversational partners. It has also been documented that even small modifications of conversational behaviour on the part of spouses and carers can significantly improve the overall experience of communication for these clients (see section 6.3.1 in Cummings (2009) for discussion). Aside from aphasia, family members and carers are also the focus of intervention in the treatment of other communication disorders. Indirect treatments for young children who stutter are targeted at parents with no attempt made to treat the speech of these children. Rather, efforts are undertaken to modify parental interaction with these children with the aim of increasing their fluency. Also, parents are instructed in how to reduce stressors in a child's environment that may be contributing to dysfluency (see Yaruss (2014) for discussion of these treatments). As with aphasia, it is parents and carers who are the focus of intervention rather than the child who stutters.

Family members and carers assume a further, important role in SLT intervention. Some interventions with clients involve the use of specialist techniques, equipment and technology. This is particularly the case in the use of augmentative and alternative communication (AAC) with clients. For a client to use a communication board or Makaton

signs effectively, family members and carers must also receive training in the use of these systems. Although communication boards are low-technology communication aids, their successful use still requires considerable skill not just on the part of the AAC user but also by communicative partners. High-technology communication aids can also pose challenges to communicative partners who must receive training not only in their technical features but also in their use in communication. These skills are acquired through direct practice with the AAC system often in the presence of SLTs. Clinicians must also be available for the purposes of troubleshooting when difficulties arise for AAC clients and their families. Clearly, there are significant resource implications for any SLT service which is charged with providing this level of support and aftercare to AAC users and their families. However, the importance of this long-term support cannot be overstated. In a systematic review of the potential barriers and facilitators to continued use of high-technology AAC, Baxter et al. (2012) found that the perceptions and attitudes of family members were a highly significant factor in the successful implementation of an AAC system. An AAC system is more likely to be abandoned by its user if family members do not feel adequately trained and supported in its use. At least as far as AAC users are concerned, direct training and support of family members and carers are an essential component of any intervention.

Finally, family members and carers also play a vital role in providing psychological and emotional support to clients in SLT. Many clients who enter SLT do so following traumatic events in their lives. They may have been diagnosed with cancer which necessitates a **laryngectomy** or a **glossectomy**. They may have sustained a traumatic brain injury or had a first-ever stroke. They may have a progressive neurodegenerative disease such as motor neurone disease. All these events and illnesses cause considerable distress to clients and their families. For most of them, a long period of rehabilitation follows the event or illness which hospitalized the client. The support of family members and carers is particularly important during this time when progress in SLT can appear slow to clients and a return to good functioning can seem unattainable. There is also an elevated risk of depression in clients who sustain a head injury or develop a stroke (Barker-Collo et al., 2015; Schöttke and Giabbiconi, 2015). Depression can reduce a client's motivation to participate in SLT or to see a course of SLT intervention through to a successful outcome. As well as encouraging clients

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to comply with SLT intervention, family members and carers provide much needed support to clients after they have been discharged from therapy. This is a time when the support of clinicians is no longer available and there is a risk that clients will fail to maintain communication gains from therapy. The support of family members and carers is particularly important at this time to prevent a loss of skills and to ensure continual reinforcement of behaviours targeted in therapy. From entry into SLT to eventual discharge, the psychological and emotional support of family members and carers can ensure compliance with intervention and the long-term maintenance of skills.

KEY POINTS: SLT and families and carers

- SLTs involve family members and carers in their work with clients who have communication and swallowing disorders. Relatives and carers perform five roles: they provide information about clients; they implement interventions outside of clinic; they may be the focus of an intervention; they may receive training in the use of specialist equipment; and they provide emotional and psychological support to clients.
- *Provide information:* family members and carers can provide SLTs with important information such as a child's developmental history and the factors that can influence a client's communication skills (e.g. fatigue, daily activities).
- *Implement intervention:* family members and carers can implement interventions such as speech and language exercises under the guidance of SLTs.
- *Focus of intervention:* Family members and carers may be directly targeted in an intervention. They may receive instruction in how to modify their own conversational behaviours to facilitate communication in clients with aphasia.
- *Receive training:* Family members and carers must be trained and

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supported in the use of specialist equipment, techniques and technology. In the case of AAC users this is necessary in order to ensure continued use of a system.

- *Provide support:* Family members and carers provide emotional and psychological support to clients. This support increases compliance with SLT interventions and the maintenance of skills after discharge from therapy.

CASE STUDY: Clients and their families

Michael is a 49-year-old business executive. Six months ago, he sustained a severe TBI in a road traffic accident on his way to work. In the weeks following his accident, Michael was mute. Mutism gradually gave way to severe dysarthria. To facilitate communication between Michael and medical staff and family members, Michael was encouraged to point to letters and symbols on a communication board. This was difficult and inefficient at first as Michael's neurological injury compromised some of his gross motor movements and his right arm was badly fractured in the accident. However, bedside training by the SLT improved the ease with which Michael was able to use this system of alternative communication. After two months in the hospital's neuro-rehabilitation unit, Michael's medical condition had stabilized sufficiently to allow him to be discharged into a nursing facility near his home. Michael spent a further three months undergoing rehabilitation in this facility. After this time, his progress was judged to be sufficiently good to warrant his returning home.

Michael's dysarthria continued to improve and he became less reliant on his communication board to communicate his needs. As Michael was able to use more spoken language to communicate, it became increasingly apparent to family

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members that his conversational skills had not returned to their pre-morbid state. Michael's wife reported considerable conversational difficulties with him at home. His communication style before his accident was described as animated, lively and engaging. However, his wife reported that following his accident, Michael did not appear to be motivated to communicate, even to his children. When he did engage in conversation, he was repetitive and unable to express ideas in a clear, logical manner. He often had difficulty retrieving words. Michael displayed poor topic maintenance and was often under-informative. He assumed his listener had knowledge of people and events when this was not the case. For example, he often used personal pronouns in the absence of preceding referents. He also became irritable at his listener's lack of comprehension and frustrated by his failure to repair conversational breakdown.

Following his accident, Michael was no longer able to work. His wife reported that he had become increasingly isolated from his social network. She believed his poor conversational skills were the reason for his isolation. On hearing these reports, the SLT decided to examine a video-recording of Michael in conversation with his wife at home. The examination confirmed many of the observations about conversation made by Michael's wife. He was repetitive in conversation. He did display word-finding problems which disrupted the flow of conversation. Michael struggled to repair conversational breakdown. However, the examination also revealed that Michael's wife employed a number of conversational behaviours which exacerbated his difficulties. Michael was most repetitive when his wife failed to acknowledge that she understood what he was communicating. Repetition was often used as a means of reiterating a point. Michael's wife did not use cues to facilitate his retrieval of words. The repair of conversational breakdown led to protracted exchanges when much shorter repair sequences would have sufficed. Having observed these behaviours, the SLT decided to institute an intervention based on conversational partner training.

Questions:

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(1) Michael's wife played a number of important roles in his communication rehabilitation. One of these roles was to provide the SLT with information that is relevant to the management of his case. Identify two ways in which this takes place.
(2) Family members play a vital role in providing psychological, emotional and social support to clients with communication disorders. Is this support required in Michael's case?
(3) In some SLT interventions, it is family members and carers who are the target of intervention. Is an intervention of this type adopted in Michael's case?
(4) Aside from conversational partner training, are Michael's family members able to contribute in any other way to his communication intervention?
(5) Michael is often repetitive during conversation. This appears to be related to a failure on the part of his wife to signal her understanding of what he is saying. Describe one way in which Michael's wife can be encouraged to signal more effectively her understanding of his message.

1.6 SLT and public health

As well as serving individuals with communication and swallowing disorders, and working with their families and carers, SLTs are increasingly being called upon to fulfil an important public health role. In the UK, the involvement of SLT for the first time in the health of populations has been ushered in by a new focus on public health in the Health and Social Care Act 2012. However, in reality, SLT has always intervened on the health of populations. This is because communication disorders are highly prevalent in the general population and are closely associated with social disadvantage and inequality. This is clearly evident in a wide-ranging survey of historical and contemporary data concerning workforce distribution and the epidemiology of speech, language, hearing and voice disorders in the United States. Ruben (2000) reported that communication disorders in the US are estimated to have a prevalence of 5% to 10%. Moreover, people with communication disorders are more economically disadvantaged than those with less severe disabilities, while people with severe speech disabilities are more often found to be unemployed or in a lower economic class than people with hearing loss or other disabilities. Given these findings, the conclusion

of this study is certainly warranted: 'The economic cost and the prevalence rates of communication disorders in the United States indicate that they will be a major public health challenge for the 21st century' (Ruben, 2000: 241). In this section, that challenge is examined by considering some of the ways in which communication disorders can impact negatively on the health of populations. SLT can, and frequently does, intervene successfully on the health of populations. Some of the ways in which this is achieved will also be addressed.

That communication disorders have the capacity to compromise health and create social exclusion and deprivation in populations is demonstrated by a number of studies. Law et al. (2009) followed a birth cohort of 17,196 children in the UK from school entry to 34 years of age. Literacy, mental health and employment at 34 years were found to be significantly associated with receptive language problems at 5 years. This relationship held over and above common demographic markers (e.g. gender). Beitchman et al. (2014) found that a cohort of children with language disorders who were followed from 5 years of age had poorer self-rated physical health at 31 years than controls with no language disorders. McAllister et al. (2012) reported a significant association between stuttering at age 16 and the socioeconomic status of occupation at age 50 in a British birth cohort dataset of 15,911 members. Cohort members who had been reported to stutter had lower-status jobs. Kobayashi et al. (2015) found that early-onset hearing loss was associated with psychological distress in a household survey of 136,849 Japanese men and women aged 20 to 39 years. In a cross-sectional survey of 461 individuals aged 50 years and older, Merrill et al. (2011) found that individuals with a history of voice disorder had significantly poorer physical and mental health than individuals with no history of voice disorder. The prevalence of language and communication disorders in the prison population is substantially elevated relative to the general population (Bryan et al., 2007). These disorders put males in particular at an increased risk of offending behaviour which serves to perpetuate social deprivation and exclusion in the communities in which they live.

That communication disorders have adverse consequences for the health and well-being of populations is clear enough. But what is also clear is that SLT can intervene effectively on

these disorders to avert some or all of these consequences. In a report commissioned by the Home Office in the UK, Moseley et al. (2006) found that reconviction rates fell sharply in prisoners who participated in oral communication courses. In the first year after release from prison, the reconviction rate among prisoners who had taken courses in oral communication was 21%. This compares with a national average for all offenders of 44%. Cooper et al. (1998) reported significant language gains in children as a result of a community-based speech and language intervention in a socially disadvantaged area of Plymouth, England. The intervention included a nursery programme called Wise Words for Nursery and parenting groups for the parents of pre-school children. Between 1993 and 1997, a battery of language tests was used to collect data from consecutive year groups that entered a single primary school. The battery contained four standardized tests that assessed lexical development, word finding, narrative skills, sentence length and syntactic development, and a rating scale that recorded phonological development. There was a significant difference between the 1993 and 1997 intakes in lexical development, narrative skills and receptive grammar, a finding which was taken to support the effectiveness of the intervention. Although there was no significant difference in speech clarity or word finding, change occurred in the direction of improvement. Average sentence length remained unchanged, a finding which the authors described as a dialectal characteristic that is resistant to change.

The positive results of Cooper et al.'s intervention have more recently been replicated in a multi-agency approach to children's speech and language problems that was adopted in Stoke-on-Trent in England. The so-called 'Stoke Speaks Out' initiative will be examined in the end-of-chapter questions. The success of these community-wide projects with an emphasis on speech, language and communication is forcing SLTs to rethink how they deliver their services to the public. Planning in this direction is already underway (e.g. Law et al., 2013). However, it is clear that much work remains to be done if SLT is to embrace fully its public health role.

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KEY POINTS: SLT and public health

• Communication and swallowing disorders are highly prevalent in the general population. By intervening on these disorders, SLTs are improving the health of populations and serving an important public health role.

• Children and adults with communication and swallowing disorders incur social and economic disadvantage. They also experience psychological distress. SLT interventions which reduce or eliminate these adverse consequences play an important role in improving opportunities for people.

• That SLT plays a significant role in enhancing the life chances of people with communication and swallowing disorders is supported by studies which demonstrate improved vocational, educational and social outcomes in individuals who receive SLT services. Re-offending rates among prisoners are also reduced when prisoners receive SLT interventions.

• The communication-related health of populations can be improved by community-wide and multi-agency approaches to intervention in the early years. These approaches make effective communication a health goal for all practitioners who deliver services in the early years.

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WEBSITE: Introduction to speech and language therapy

After reading the chapter, visit the website and test your knowledge of speech and language therapy by answering the short-answer questions for this topic.

Suggestions for further reading:

(1) Pring, T., Flood, E., Dodd, B. and Joffe, V. (2012) 'The working practices and clinical experiences of paediatric speech and language therapists: A national UK survey', *International Journal of Language & Communication Disorders*, 47 (6): 696-708.

This article examines the working practices of paediatric SLTs in the UK. It is based on an online survey that was completed by 516 clinicians. The article describes the settings that these clinicians work in, their different duties, and how much time is spent working with clients with a range of disorders. The views of respondents on the impact of healthcare reform on SLT are also addressed.

(2) Kersner, M. and Parker, A. (2012) 'Developing as a speech and language therapist', in M. Kersner and J.A. Wright (eds.), *Speech and Language Therapy: The Decision-Making Process when Working with Children*, London and New York: Routledge, 16-27.

This chapter examines the skills and knowledge that are required of SLTs in the workplace. Different learning models that are relevant to key skills in SLT are described. The process of learning and professional development that allows SLTs and therapists-in-training to make decisions is discussed.

(3) Wright, J.A. and Kersner, M. (2004) *A Career in Speech and Language Therapy*, Third Edition, London: Metacom Education.

Appears in: Cummings, L. (2018) *Speech and Language Therapy: A Primer*, Cambridge: Cambridge University Press.

This volume introduces readers to the wide-ranging work of speech and language therapy. The skills needed by SLTs are examined along with the profiles of therapists who work in a range of contexts (acute hospital, child development centre, etc.). Readers receive guidance in how to apply for SLT courses. The experience of being a SLT student is addressed as well as professional life after qualification.

QUESTIONS: Introduction to speech and language therapy

(1) The roles of the SLT are many and varied. Each of the following statements captures one of these roles. Identify the role in each statement:

(a) The SLT conducts a systematic review of the effectiveness of SLT interventions in childhood dysarthria.
(b) The SLT attends a careers event at a local school where he or she talks to pupils and their parents about SLT.
(c) The SLT completes the Children's Communication Checklist (Bishop, 2003) on a 5-year-old boy with suspected ASD.
(d) The SLT meets with students on clinical placement to review the management of clients.
(e) The SLT identifies the problematic communication skills of a client as a case of **right-hemisphere language disorder**.
(f) The SLT uses semantic judgement tasks with a stroke client who has aphasia.
(g) The SLT expresses the wishes and views of a client with **motor neurone disease** at a case review meeting.

(2) Each of the following statements describes an impact of a communication or swallowing disorder. For each statement, identify the impact that is related to the disorder:

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(a) A year after his stroke, a 60-year-old man with aphasia no longer attends his local history group or goes out for meals with friends. He feels his limited expressive language restricts his participation in these events.

(b) A woman who experiences dysphonia with the onset of the menopause reports significant loss of confidence and poor self-esteem as a result of her voice disorder.

(c) An adult with dysarthria related to **cerebral palsy** reports that he has been prevented from moving into customer-facing roles within his workplace and has been denied several promotions where jobs involve these roles.

(d) A 7-year-old boy with speech sound disorder is at the bottom of his class in scores in **literacy**. A classroom assistant is assigned to him to undertake work on his poor reading skills.

(e) A 10-year-old boy with poor expressive language skills displays defiant behaviour to teachers in class. At home, he reacts to conflict with his parents with outbursts of temper and has physically threatened them on several occasions.

(f) A teenager with a history of speech and language difficulties regularly misses school and engages in antisocial behaviour in his local community. He has appeared in juvenile courts on charges relating to car thefts and the use of illicit substances.

(3) Each of the following statements describes an aspect of the knowledge of SLTs. Relate each statement to a particular linguistic, medical, scientific or psychological discipline:

(a) A child with **fragile X syndrome** cannot sort pictures according to the categories *furniture* and *transport*.

(b) A 55-year-old woman with hoarseness is shown to have a **vocal polyp** on her left vocal fold.

(c) A child referred to SLT is reported to have been delayed in crawling, walking and sitting without support.

(d) A child with a cleft palate uses the glottal stop [ʔ] in place of oral plosives.

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(e) An adult who has a stroke experiences facial weakness on account of damage to cranial nerve VII.

(f) **Delusions** and **hallucinations** are positive symptoms of schizophrenia.

(g) An adult with ASD cannot understand the utterance *Bill kicked the bucket*.

(h) A child's statement of special educational needs shows that he has verbal IQ of 65 and a non-verbal IQ of 85.

(i) An investigation of an adult's hypernasal speech reveals that there is limited elevation of the velum.

(j) The prevalence rate of specific language impairment in monolingual English-speaking kindergarten children is 7.4%.

(4) (A) Communication disorders were examined in this chapter according to the distinctions *developmental* versus *acquired* communication disorder and *speech* versus *language* disorder. Use these distinctions to classify each of the following communication disorders, e.g. aphasia (acquired language disorder):

(a) childhood apraxia of speech

(b) specific language impairment

(c) right-hemisphere communication impairment

(d) stroke-induced dysarthria

(e) childhood dyslexia

(B) Classify each of the following statements according to the distinctions between a *receptive* versus *expressive* language disorder and a *primary* versus *secondary* language disorder:

(a) Joan has aphasia and cannot understand passive voice constructions.

(b) Bill sustained a TBI and produces repetitive language during conversation.

(c) Tom has **frontotemporal dementia** and cannot comprehend idioms.

(d) Olive exhibits agrammatism following a CVA in the left hemisphere.

(e) Jack has right-hemisphere damage and uses egocentric language when asked

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to explain the meaning of a metaphor.

(5) There is close involvement of family members and carers of clients in SLT. This involvement can take a number of forms. Each of the scenarios below describes one of these forms. Use the following terms to characterize the particular involvement indicated by the scenario: *provide information; implement intervention; focus of intervention; receive training; provide support.*

(a) The mother of a 5-year-old boy with phonological disorder practices production of /s/ in word-initial position in a sound game with him at home.
(b) The wife of a 60-year-old man with aphasia is instructed in how she can modify her cueing behaviour to aid his retrieval of words during conversation.
(c) A 75-year-old man has feeding and swallowing problems following a stroke. His self-reported quality of life is poor and he has depression. His daughter takes advice from a dysphagia therapist and dietician and encourages her father's compliance with their recommendations. With his daughter's support, the man is able to continue oral feeding.
(d) A 65-year-old woman with Alzheimer's dementia is admitted to hospital. A SLT arrives on the ward to assess her. The woman's husband is able to tell the therapist in some detail about the decline of his wife's verbal communication skills.
(e) The parents of a non-verbal child with autism spectrum disorder are instructed in the use of the Picture Exchange Communication System by a SLT.

(6) Examine the information below about an initiative which was established in Stoke-on-Trent in England in 2004 to address the high incidence of language delay in young children. Then identify <u>three</u> aspects of this initiative which qualify it as a speech and language intervention which fulfils a public health role:

> *Stoke Speaks Out* was established as a city-wide strategy to encourage children's communication development. In 2002, local research

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indicated that many children in the area were starting school with poor language skills. In 2004, this was estimated to be as high as 64%. The initiative involved everyone in Stoke-on-Trent who works with children. All practitioners who work with children under 7 years of age and their families were offered training and support in issues relating to speech, language and communication. A practitioner network was established to discuss and develop ways in which children with speech, language and communication needs could be supported. In local communities 'communication ambassadors' were recruited to share messages about early communication development. Schools and other settings were accredited with a quality mark, a 'communication friendly' award. Since the initiative was established in 2004, over 4,500 practitioners have received training in speech and language development among other areas. By 2010, the number of children who entered nursery with a language delay had dropped to 39%. Communication development is now one of five priorities in Early Years in Stoke-on-Trent.

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NOTES

1. Crystal and Varley (1998) define elocution as 'the art of clear speaking in public, as judged by the cultural standards of the time; it aims to develop the speaking voice to its aesthetic and rhetorical peak, well beyond that which is necessary for the continuance of everyday communication' (13).

2. GCSE stands for General Certificate of Secondary Education. This is the school qualification that is taken by 16-year-olds in the UK.

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ANSWERS

Case study answers:

(1) Michael's wife was able to describe his pre-morbid communication skills for the SLT. She was also able to describe how Michael was communicating at home following his accident.

(2) Following his accident, Michael does not appear to be motivated to communicate with members of his family. This suggests the presence of depression. Also, his wife reports that he has experienced growing social isolation as a result of his communication difficulties. Michael has evidently displayed poor psychosocial adjustment to his communication disorder. This is an area that family members can positively influence by providing him with support.

(3) An intervention of this type is adopted in Michael's case when the SLT decides to institute conversational partner training.

(4) Michael's family members have an important role to play in ensuring his successful use of an alternative communication system when he was mute and severely dysarthric.

(5) Michael's wife can be encouraged to make greater use of back-channel behaviour (e.g. 'hm', 'yes') as a means of explicitly signalling to Michael that she is listening to, and understanding, what he is saying. This will help reduce Michael's tendency to use repetition in conversation as a means of ensuring his message is communicated.

End-of-chapter questions:

(1) (a) research; (b) education; (c) assessment; (d) mentoring; (e) diagnosis; (f) treatment; (g) advocacy

(2) (a) social impact; (b) psychological impact; (c) occupational or vocational impact; (d) academic impact; (e) behavioural impact; (f) forensic impact

(3) (a) semantics; (b) otorhinolaryngology; (c) developmental psychology; (d) phonetics; (e) neurology; (f) psychiatry; (g) pragmatics; (h) educational psychology; (i) physiology; (j) epidemiology

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(4) (A) (a) developmental speech disorder; (b) developmental language disorder; (c) acquired language disorder; (d) acquired speech disorder; (e) developmental language disorder

(B) (a) receptive-primary language disorder; (b) expressive-secondary language disorder; (c) receptive-secondary language disorder; (d) expressive-primary language disorder; (e) expressive-secondary language disorder

(5) (a) implement intervention; (b) focus of intervention; (c) provide support; (d) provide information; (e) receive training

(6) Three aspects of *Stoke Speaks Out* which qualify it as a speech and language intervention which fulfils a public health role:

(a) The intervention targets a population, namely, all 7-year-old children and their families in Stoke-on-Trent, rather than individuals.

(b) The intervention has a prevention element at its heart as it aims to avert the social disadvantage and other harmful consequences (e.g. poor mental health) of communication disorders.

(c) The intervention embodies health promotion in that it encourages people to be proactive and undertake positive behaviour change in relation to communication development and disorders.

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Glossary

academic impact: A communication disorder can adversely affect the academic performance of a child or an adult. Academic impact may be measured in the number of qualifications achieved by an individual at different stages of formal education.

acquired communication disorder: A communication disorder which has its onset after the period in which speech and language skills are normally acquired. Such a disorder can be found in adolescents and in adults.

aetiology: The medical or other causes of a disorder. Causes may range from organic problems (e.g. a laryngeal tumour in a voice disorder) through to psychological and behavioural factors (e.g. psychological trauma in psychogenic dysphonia). Many communication disorders have a mixed aetiology, with organic, psychological and behavioural factors all contributing to the development of these disorders.

agrammatism: (also, agrammatic aphasia) A feature of non-fluent aphasia in which the speaker retains content words but omits function words and inflectional morphemes from his or her speech. Verbal output has the appearance of a telegram, e.g. 'Man…walk…dog' for *The man is walking the dog*.

Alzheimer's disease: A neurodegenerative disease that is the most frequent cause of dementia. Amyloid plaques and neurofibrillary tangles develop in the brains of individuals with Alzheimer's disease.

amplification: The use of hearing aids, cochlear implants and other devices to give children or adults with hearing loss as much access to the auditory environment, and speech in particular, as possible.

amyotrophic lateral sclerosis: see *motor neurone disease*

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anatomy: Applied to speech-language pathology, the study of the biological structures that are involved in communication. This includes the oral articulators (e.g. tongue), larynx, lungs and structures of the brain.

aphasia (dysphasia): An acquired language disorder in which the expression and/or reception of language (spoken, written and signed) is compromised. Aphasia can be broadly classified as fluent and non-fluent types. Fluent aphasia is further subdivided into Wernicke's, anomic, conduction and transcortical sensory aphasia. Non-fluent aphasia is further subdivided into Broca's and transcortical motor aphasia. A further non-fluent aphasia – global aphasia – is characterized by severe impairment of all language functions.

articulation disorder: A disorder of the motor production of speech sounds. Errors may be classified as substitutions (e.g. [w] for /r/), omissions, distortions or additions. Articulation disorders may have an organic aetiology (e.g. brain injury) or they may be of unknown origin.

attention deficit hyperactivity disorder: A disorder that is diagnosed on the basis of symptoms of inattention and hyperactivity-impulsivity. DSM-5 recognizes four types of ADHD depending on the pattern and duration of inattentive and hyperactive/impulsive symptoms: combined presentation; predominantly inattentive presentation; predominantly hyperactive/impulsive presentation; and inattentive presentation.

audiology: The study of hearing. Audiology is also the name of the profession which is concerned with the prevention, diagnosis and rehabilitation of auditory problems.

augmentative and alternative communication: When spoken communication skills are severely impaired and are unlikely to improve, a type of AAC may be considered for use with a client. AAC may take high- and low-tech forms such as a communication board attached to a client's wheelchair or the use of synthesized speech output.

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autism spectrum disorder: A neurodevelopmental disorder in which there are persistent deficits in social communication and social interaction and restricted, repetitive patterns of behaviour, interests or activities. These symptoms must be present in the early developmental period and cause clinically significant impairment in social, occupational, or other important areas of functioning.

behavioural impact: A communication disorder may have adverse consequences for the behaviour of children and adults. In children, communication impairments may lead to disruptive behaviour in the classroom or challenging behaviour at home. In adults, communication impairments may lead to aggressive behaviour with family members and carers in the case of clients with conditions like dementia and traumatic brain injury.

central nervous system: The part of the nervous system that consists of the brain and spinal cord.

cerebral palsy: A neurodevelopmental disorder that results in impairment of gross and fine motor skills. Speech production is often compromised. Cerebral palsy is caused by a range of factors in the pre-, peri- and post-natal periods which cause damage to the brain's motor centres.

cerebrovascular accident: The medical term for a stroke. CVAs may be caused by a blood clot (embolus) in one of the blood vessels in the brain or leading to the brain (embolic stroke) or by a haemorrhage (haemorrhagic stroke) in one of these vessels.

childhood apraxia of speech: A motor speech disorder which has its onset in the developmental period. There is disruption of the programming of motor movements for speech production in the absence of neuromuscular deficits. Both consonant and vowel sounds are affected. There is often no clear aetiology of the disorder.

cleft lip and palate: A disorder of embryological development that results in a cleft of the upper lip, alveolus, hard and soft palates. Clefts may be unilateral or bilateral and can affect

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the primary palate only, the secondary palate only or both primary and secondary palates. Some clefts of the palate are described as submucous in nature, because the mucous membrane covering the palate may be intact and conceal an absence of muscle and bone beneath it.

clinical psychology: The branch of psychology that focuses on the understanding, assessment and treatment of psychological and behavioural problems and disorders. Among the clients treated by clinical psychologists are individuals with substance and other addictions, suicidal impulses, head injuries and compulsive eating.

cluttering: A fluency disorder which is characterized by increased rate of speech, disorganized language and (somewhat disputed) a lack of awareness of communication difficulties on the part of the speaker. Cluttering is most often found alongside stuttering but sometimes occurs in a pure form.

cognitive-communication disorder: The term applied to any communication disorder which is related to cognitive deficits. The language and communication impairments of clients with traumatic brain injury and right-hemisphere damage are described as cognitive-communication disorders.

cognitive psychology: The scientific study of mind and mental functions such as attention, perception, memory, language, reasoning and learning.

coherence: In general, coherence describes an attribute of spoken and written texts that allows them to hold together and make sense as a unity. Readers and hearers use a wide range of linguistic and other criteria to judge texts to be more or less coherent.

cohesion: A range of grammatical and lexical features can be used to connect sentences to other sentences in a text. These features include the use of anaphoric reference (e.g. *Mary bought a book. It was expensive*) and ellipsis (e.g. *Would anyone like a drink? I would*).

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computerized axial tomography: A technique in which an x-ray source produces a narrow, fan-shaped beam of x rays to irradiate a section of the body. On a single rotation of the x-ray source around the body, many different 'snapshots' are taken. These are then reconstructed by a computer into a cross-sectional image of internal organs and tissues for each complete rotation. This technique is commonly known as a CAT scan.

conductive hearing loss: Hearing loss which is related to damage and disease of the outer and middle ear, leading to compromised conduction of sound waves. Causes of this type of hearing loss include the failure of the ear canal to develop during embryological development (resulting in complete atresia of the canal), the development of middle ear disease such as otitis media ('glue ear') and ossification of the ossicular chain in otosclerosis.

consonant cluster reduction: A syllable simplification process which is found in the speech of normally developing children and children with speech sound disorders. Combinations of two and three consonants are reduced to a consonant singleton either syllable initially (e.g. 'string' [rɪŋ]) or syllable-finally.

conversation analysis: The origins of conversation analysis are in an American sociological movement of the 1970s called ethnomethodology, defined as the study of 'ethnic', that is, participants' own methods of production and interpretation of social interaction. For the conversation analyst, analysis proceeds in an essentially inductive fashion. Many extracts of naturally occurring conversation are examined with a view to establishing recurring structural patterns. Conversation analysis has been applied in various ways to the study, assessment and treatment of communication disorders.

cytomegalovirus: The most common cause of congenital infection in the US. Congenital cytomegalovirus (CMV) infection is the leading cause of sensorineural hearing loss in young children and can also cause significant intellectual disability. CMV is also a common opportunistic infection in individuals with HIV infection.

delusion: A false and bizarre belief. Delusions are a positive symptom of schizophrenia.

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dementia: A deterioration in higher cortical functions (e.g. language, memory) that can be caused by a range of diseases (e.g. vascular disease, Alzheimer's disease), infections (e.g. HIV infection) and lifestyle (e.g. alcohol-related dementia).

developmental apraxia of speech: see *childhood apraxia of speech*

developmental communication disorder: A communication disorder which has its onset in the developmental period, a time when children are undergoing speech and language acquisition.

developmental period: A period of time during which cognitive, linguistic and other abilities are acquired by infants, children and young people. The developmental period can extend for many years according to certain definitions. In the US, the Centers for Disease Control and Prevention (2012) state that a developmental disability can have its onset at any time during development up to 22 years of age. One developmental disability – intellectual developmental disorder – can have its onset at any point up to the age of 18 years (American Psychiatric Association, 2013).

developmental phonological disorder: A condition in which children misarticulate many more speech sounds than is expected for their age. The disorder occurs in the absence of factors such as neuromuscular impairment and intellectual disability which might otherwise explain speech sound errors. Errors are typically characterized in terms of phonological processes such as stopping, fronting and weak syllable deletion. The disorder is more commonly found in boys than in girls.

developmental psychology: The branch of psychology that studies human growth and development across the lifespan. This includes growth in physical, cognitive, social, intellectual, perceptual, personality and emotional domains.

developmental verbal dyspraxia: see *childhood apraxia of speech*

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Diagnostic and Statistical Manual of Mental Disorders: Published by the American Psychiatric Association in 2013, DSM-5 is an internationally recognised, authoritative guide to all mental disorders. It contains descriptions, symptoms and diagnostic criteria for these disorders. It is the handbook used by all healthcare professionals who are involved in the diagnosis of conditions ranging from autism spectrum disorder to schizophrenia.

discourse: In terms of linguistic analysis, discourse is the level of language above individual sentences. The focus of study is on extended extracts of language in spoken and written texts.

Down syndrome: A chromosomal disorder that results from an extra chromosome 21. The additional chromosome may be found in all cells (trisomy 21), in some cells (mosaic) or attached to another chromosome (translocation). Individuals with the syndrome exhibit physical problems (e.g. heart defects) and cognitive difficulties (intellectual disability). See *trisomy 21*.

dysarthria: A speech disorder that is caused by damage to the central and peripheral nervous systems. Dysarthria can be developmental or acquired in nature and affects articulation, resonation, respiration, phonation and prosody.

dyslexia: A reading impairment which has its onset in childhood (developmental dyslexia) or in adulthood (acquired dyslexia). There are different types of dyslexia. For example, the individual with deep dyslexia can read words with concrete meanings more easily than words with abstract meanings. In surface dyslexia, which is often found in semantic dementia, the reading of non-words is preserved while the reading of irregular words is impaired.

dysphagia: The term given to a swallowing disorder in children and adults. Dysphagia can arise following a stroke or other neurological injury (neurogenic dysphagia), as a result of structural causes (e.g. a tumour), as a complication of surgery (iatrogenic dysphagia) or on

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account of psychological factors (psychogenic dysphagia). The oral and pharyngeal stages of swallowing may be compromised (oropharyngeal dysphagia) or the impairment may occur in the oesophageal stage of swallowing (oesophageal dysphagia). In most cases, the disorder can be managed by dietary and other modifications. When dysphagia is severe, non-oral feeding is instituted as the only safe method of feeding.

dysphonia: Another term for a voice disorder. Dysphonias may be organic (i.e. have a structural or neurological aetiology) or functional in nature (i.e. have a psychogenic or hyperfunctional aetiology). Regardless of the origin of a dysphonia, its effect on the perceptual attributes of the voice may be captured by terms such as 'hoarse', 'breathy', and 'strain-strangled'.

educational psychology: The application of psychology and psychological methods to the study of learning, instruction and assessment and other issues (e.g. motivation) that influence the interaction between teaching and learning.

electropalatography: An instrumental technique that provides a visual display of tongue-palate contacts. Electropalatography is used in the assessment and treatment of a range of clients including children with cleft palate. Not all subjects can tolerate the artificial palate that must be worn in this technique.

epidemiology: The study of the prevalence and incidence of a disease or disorder. Prevalence describes the total number of cases of a disease or disorder which exist in a population. Incidence captures the number of newly diagnosed cases of a disease or disorder, typically in a year.

executive dysfunction: (also, executive function deficits) Executive functions are a group of cognitive skills which are essential to goal-directed behaviour (e.g. planning ability, mental flexibility) and which are believed to mediated in large part by the brain's frontal lobes. Impairment of these cognitive skills is thought to be related to communication difficulties in clients who sustain a traumatic brain injury.

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expressive language disorder: see *language disorder*

fluency disorder: Any anomaly in the flow of speech. Stuttering (or stammering) and cluttering are fluency disorders. However, fluency may also be compromised in clients with other conditions such as aphasia.

forensic impact: A communication disorder may result in antisocial behaviour such as damage to property and harm to individuals. The forensic impact of a communication disorder may bring a child or adult into contact with the criminal justice system.

fragile X syndrome: The most common inherited form of intellectual disability which is caused by the fragile X mental retardation 1 (FMR1) gene on the X chromosome. It is more commonly seen in males.

frontotemporal dementia: A group of dementias which is associated with a range of neuropathologies including motor neurone disease, corticobasal degeneration, Pick's disease, progressive supranuclear palsy, Alzheimer's disease, Lewy body variant, prion disease and vascular dementia. Frontotemporal dementia includes a behavioural variant, semantic dementia and progressive non-fluent aphasia.

gastroenterology: The medical specialty that is concerned with disorders and conditions of the gastrointestinal tract. Gastroenterologists assess and treat disorders of the oesophagus, stomach, small and large intestines, pancreas and liver.

gastroesophageal reflux disease: see *laryngopharyngeal reflex*

glossectomy: Surgical removal of the tongue either in whole (total glossectomy) or in part (partial glossectomy). Most commonly, glossectomy is necessitated by the presence of tongue cancer (primarily squamous cell carcinoma).

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hallucination: The perception of things that do not exist. Hallucinations may be visual or auditory in nature. Auditory hallucinations are most common in schizophrenia.

humour: A technical expression which is intended to cover all pre-theoretical notions of comical, ridiculous or laughable language. Humour is studied by pragmatists. The use and appreciation of humour are impaired in a range of clients with communication disorders.

hyperadduction: A laryngeal finding in which there is increased closing force, or adduction time, in the glottal cycle. Hyperadduction can occur as a primary problem which may then give rise to secondary pathology. Alternatively, it may serve as a compensatory behaviour in response to the presence of laryngeal pathology. The speaker who engages in hyperadduction may have a vocal presentation which ranges from complete aphonia to a mildly hoarse voice.

hypernasality: (also, hypernasal speech) Excessive nasal resonance in speech which may be caused by velopharyngeal incompetence. Hypernasal speech is a feature of cleft palate speech and dysarthric speech.

idiom: A linguistic expression the meaning of which cannot be based on the meanings of its individual words (i.e. the meaning of idiomatic expressions is non-compositional). Common idioms include *pop the question* and *let the cat out of the bag*. The understanding or comprehension of idioms is often compromised in clients with pragmatic disorders.

indirect speech act: A speech act can be performed directly (e.g. 'Open the window!') or indirectly (e.g. 'Can you open the window?'). The choice of speech act is determined by politeness considerations among other factors. An indirect speech act is often produced by questioning one of the preparatory conditions on the performance of a speech act (in the case of the above directive, that the hearer *can* undertake the requested action).

intellectual disability: A term used in DSM-5 to describe children and adults with an intelligence quotient (IQ) below 70. Intellectual disability is a feature of many syndromes

(e.g. Down syndrome) and is found in other clinical conditions (e.g. autism spectrum disorder). In the UK, another term that is used to describe children and adults with intellectual disability is 'learning disability'.

language decoding: The stage in the human communication cycle in which linguistic rules are used to analyse the phonological and syntactic structure and semantic content of utterances.

language disorder: The term used to describe a breakdown in the formulation or production of language (expressive language disorder) and the comprehension or understanding of language (receptive language disorder). In clinical terms, a language disorder is distinct from a speech disorder in that only the former deals with symbolic aspects of communication.

language encoding: The stage in the human communication cycle in which phonological, syntactic and semantic elements are selected in order to give linguistic expression to a communicative intention.

laryngeal cancer: A malignant neoplasm can develop on any of the tissues of the larynx, resulting in laryngeal cancer or carcinoma. Depending on the location, type and size of a tumour, a combination of surgery, radiotherapy and chemotherapy may be used in treatment.

laryngectomy: Surgical removal of the larynx either in whole (total laryngectomy) or in part (partial laryngectomy). A laryngectomy is most often undertaken to treat laryngeal cancer. Surgeons aim to conserve as much of the structure and function of the larynx as possible. For example, a supraglottic laryngectomy is performed to remove a laryngeal tumour that originates from the epiglottis, aryepiglottic folds and false vocal cords while minimizing morbidity and maintaining the three functions of the larynx (airway protection, respiration and phonation).

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laryngopharyngeal reflux: An extraoesophageal variant of gastroesophageal reflux disease (GERD) that affects the larynx and pharynx. The acidic contents of the stomach make their way to the top of the oesophagus and spill over into the larynx. Laryngopharyngeal reflux has been linked to a number of vocal fold pathologies including laryngeal carcinoma.

laryngoscopy: A technique used to examine the larynx. In mirror laryngoscopy, the examining physician uses gauze to hold the end of the client's tongue while a laryngeal mirror is positioned just below the back of the soft palate as the patient says 'ee'. In patients where this procedure elicits a strong gag reflex, fibreoptic laryngoscopy may be a more appropriate technique. A flexible endoscope is passed transnasally into a position above the larynx. Insertion of the scope may be made more tolerable by the use of a local anaesthetic spray.

lexical relation: A semantic relation between lexemes in the same language. Lexical relations include synonymy (e.g. *liberty – freedom*), antonymy (e.g. *old – young*), hyponymy (e.g. *bird – parrot*) and meronymy (e.g. *book – chapter*).

literacy: There is no standard definition of literacy. All definitions include the ability to read and write to an appropriate level of fluency. Additionally, some definitions also make reference to the ability to speak and listen well.

Makaton: A language programme that uses signs and symbols to help children and adults to communicate. Makaton is designed to support spoken language, with signs and symbols used alongside speech in spoken word order. Makaton can be used with clients who have no speech and with clients whose speech is unintelligible.

meningitis: A bacterial or viral infection in which there is inflammation of the meninges, the membranes which envelope the brain and spinal cord. Meningitis is a significant cause of developmental and acquired speech, language and hearing disorders.

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metaphor: A figure of speech in which a person or object is represented in terms of salient features of another entity. For example, in the metaphor *Bob is a mouse*, Bob is taken to exhibit characteristics such as timidity and shyness. Metaphors differ from similes (e.g. *Bob is like a mouse*).

morphology: The linguistic discipline that studies the internal structure of words and the patterns and principles that underlie their composition. The morpheme is the unit of analysis.

motor neurone disease: A progressive neurodegenerative disease in which there is a widespread and often rapid deterioration of upper and lower motor neurones. Motor neurone disease (MND) affects all aspects of speech production and eventually swallowing and feeding. There are three types of MND: amyotrophic lateral sclerosis; progressive bulbar palsy; and progressive muscular atrophy.

motor speech disorder: An impairment of speech production which may arise as a result of disruption in motor programming (apraxia of speech) and/or motor execution (dysarthria). Motor speech disorders may be developmental or acquired in nature and can result in mild to severe unintelligibility.

motor speech execution: The stage in the human communication cycle in which the muscles of the articulatory, resonatory, phonatory and respiratory mechanisms perform the movements that are required to produce speech.

motor speech programming: The stage in the human communication cycle in which there is planning of the movements of the articulatory, resonatory, phonatory and respiratory mechanisms for speech production.

mutism: Speechlessness, which can have a neurological or behavioural aetiology. Mutism is a feature of many clinical conditions including childhood posterior fossa tumour, traumatic brain injury, dementia and Landau-Kleffner syndrome.

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nasometer: see *nasometry*

nasometry: An objective technique which is used to measure the acoustic correlate of nasality. The nasometer produces a score which represents the ratio of energy in oral and nasal acoustic sound signals. Nasometry can be used to supplement the perception of hypernasal resonance in clients with velopharyngeal insufficiency.

neurology: The branch of medicine that is concerned with the study, assessment and treatment of disorders of the nervous system.

neuropsychology: The study of the relationship between brain structure and behaviour. Neuropsychology has experimental, cognitive and clinical sub-disciplines. One of the sub-disciplines most relevant to SLT – clinical neuropsychology – is concerned with the assessment and rehabilitation of individuals with impaired function following brain injury, illness or trauma.

occupational impact: see *vocational impact*

otolaryngology: (also, otorhinolaryngology) American term used to describe the medical discipline that assesses and treats ear, nose and throat disorders. This specialty is known as ENT medicine in the UK.

peripheral nervous system: The part of the nervous system which consists of the nerves that branch out from the brain and spinal cord. The peripheral nervous system is further subdivided into the somatic nervous system (nerves that go to the skin and muscles and which mediate conscious activities) and the autonomic nervous system (nerves that connect the central nervous system to visceral organs such as the heart and which mediate unconscious activities).

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phonetics: The study of human speech sounds according to how they are made (articulatory phonetics), their physical properties (acoustic phonetics) and how they are perceived (speech perception).

phonological disorder: see *developmental phonological disorder*

phonology: The study of the organization of speech sounds into systems. Phonologists examine how particular sounds are used to distinguish between words (e.g. *pat* – *bat*). The phoneme is the unit of analysis.

physiology: The study of how cells, tissues and organisms function. Along with anatomy, physiology is an essential biological discipline for study by SLTs.

pragmatic language impairment: A successor to the term 'semantic-pragmatic disorder'. Pragmatic language impairment describes a subgroup of children with specific language impairment in which there are marked difficulties with the pragmatics of language. The label 'social (pragmatic) communication disorder' is used in DSM-5 to describe individuals with pragmatic language impairment. See *social (pragmatic) communication disorder*.

pragmatics: The study of language use and aspects of meaning that are dependent on context. Pragmatic meaning is variously referred to as speaker meaning, implied meaning, non-literal meaning and non-truth-conditional meaning.

psychiatry: The medical specialty that assesses, diagnoses and treats mental, emotional and behavioural disorders.

psychological impact: Communication and swallowing disorders can have adverse consequences for an individual's mental health and psychological well-being. The psychological impact of these disorders may include depression, anxiety and low self-esteem.

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puberphonia: Also known as mutational falsetto, this voice disorder is typically seen in adolescent males who continue to speak with a pre-pubescent voice beyond the point at which voice mutation occurs.

pure tone audiometry: The most commonly performed hearing test, this pure tone air conduction procedure gives a record of hearing level by frequency (125-8 k Hz). Sound is delivered to the ear canal via headphones or ear inserts and results are graphed on an audiogram.

receptive language disorder: see *language disorder*

right-hemisphere damage: see *right-hemisphere language disorder*

right-hemisphere language disorder: Stroke-induced and other lesions in the right hemisphere of the brain produce a different pattern of language impairment from that which occurs in left-hemisphere damage. Structural language is often intact. However, significant impairments in pragmatics and discourse can compromise many aspects of communication.

schizophrenia: A serious mental illness which is diagnosed on the basis of positive and negative symptoms. Positive symptoms include thought disorder, delusions and hallucinations (mostly auditory). Negative symptoms include affective flattening, poverty of speech, apathy, avolition and social withdrawal.

semantics: The study of the linguistic meaning of words (lexical semantics) and sentences.

sensorineural hearing loss: Hearing loss which is related to cochlear damage, impairment of the auditory pathway to the brain and damage of the auditory cortices in the brain. Possible causes of sensorineural hearing loss include infections such as meningitis, trauma and cerebrovascular accidents.

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social (pragmatic) communication disorder: A new diagnostic category contained for the first time in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders. For a diagnosis of social communication disorder to be made, there must be persistent difficulties in the social use of verbal and non-verbal communication. Deficits must result in functional limitations in effective communication, social participation, social relationships, academic achievement or occupational performance. Symptoms must have their onset in the early developmental period and should not be attributable to another medical or neurological condition or to low abilities in word structure and grammar. Symptoms must also not be better explained by ASD, intellectual disability, global developmental delay or another mental disorder. See *pragmatic language impairment*.

social impact: Communication and swallowing disorders can have adverse consequences for an individual's social functioning. The social impact of these disorders may include social withdrawal, poor social reintegration after illness or injury, and reduced friendship networks.

specific language impairment: A severe developmental language disorder. Specific language impairment has been described as a diagnosis by exclusion as language impairment occurs in the absence of hearing loss, craniofacial anomaly, intellectual disability, psychiatric disturbance and other factors which are known to cause language disorder.

speech sound disorder: Difficulty with and/or delayed development of a child's speech. 'Speech sound disorder' is an umbrella term for several categories of disorder including articulation disorder, phonological disorder and childhood apraxia of speech.

stammering: see *stuttering*

standardized test: Any test that is administered and scored in a predetermined, standard manner. Because the test is administered and scored in exactly the same way on each occasion of use, it is possible to attribute the results to the performance of the individual being tested and not to differences in how the test was conducted.

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stopping: A simplification process which is found in the speech of normally developing children and children with speech sound disorders. A fricative sound is replaced by a plosive or stop sound. This can occur in any word position, e.g. in 'five' [paɪv] the substitution occurs in word-initial position.

stroke: see *cerebrovascular accident*

stuttering: Also known as stammering, stuttering is a fluency disorder which is characterized by word- and syllable-initial iterations (repetitions) and perseverations (prolongations). Iterations can involve a single speech sound (e.g. s-s-s-soap) or more than one speech sound, the latter sound typically a schwa vowel (e.g. sə-sə-sə-side). Protractions or perseverations are always single speech sounds (e.g. s::::soap). Stuttering occurs in developmental, acquired (mostly neurogenic) and psychogenic forms.

subdural haematoma: The collection of blood between the inner layer of the dura but external to the brain and arachnoid membrane. A subdural haematoma is commonly caused by a traumatic brain injury.

syntax: The study of sentence structure. The aim of a syntactic analysis of a language is to produce a precise and rigorous description of the rules that characterize the phrases and sentences of that language. The ability to produce and understand syntactically well-formed sentences – expressive and receptive syntax, respectively – may be impaired in children and adults with language disorder.

traumatic brain injury: There are two forms of traumatic brain injury. In an open or penetrating head injury, the skull is fractured or otherwise breached by a missile. In a closed head injury, the brain is damaged while the skull remains intact.

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velopharyngeal port: The area between the velum and the lateral and posterior pharyngeal walls. In a client with velopharyngeal incompetence, this port is not fully closed by elevation of the velum and contraction of the pharyngeal walls. The result is hypernasal speech.

videofluoroscopy: A radiological investigation in which fluoroscopic images appear on the monitor of an X-ray machine while a patient is swallowing a radio-opaque bolus. This procedure is used extensively in the assessment of swallowing and dysphagia, but may also be employed to understand aspects of articulation (e.g. velopharyngeal function).

vocal nodule: Small, benign growths that occur along the margins of the vocal folds mostly at the junction of the anterior and middle third of the fold. Nodules are the most common cause of voice disorders in school-age children and are often associated with professional voice users (e.g. singers). These growths are the result of vocal abuse and misuse.

vocal polyp: A benign growth of the vocal fold which is larger than a vocal nodule. Polyps are fluid-filled and may have their own blood supply. Smoking, hypothyroidism, gastroesophageal reflux and vocal misuse are causes of polyps.

vocational impact: Communication and swallowing disorders can have adverse consequences for an individual's vocational or occupational functioning. This may arise directly in the case where an individual does not have the requisite communication skills to assume a particular vocational role. It may also arise indirectly in the case where a communication disorder leads to poor academic achievement which in turn limits the vocational roles that an individual can pursue.

voice disorder: see *dysphonia*

Appears in: Cummings, L. (2018) *Speech and Language Therapy: A Primer*, Cambridge: Cambridge University Press.

REFERENCES

American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition, Washington, DC: American Psychiatric Association.

American Speech-Language-Hearing Association (2014) *2014 Schools Survey. Survey Summary Report: Number and Type of Responses, SLP*, Rockville, MD: ASHA. Available online at: www.asha.org/uploadedFiles/2014-Schools-Survey-SLP-Frequency-Report.pdf (accessed 24 August 2015).

American Speech-Language-Hearing Association (2015) *2015 SLP Health Care Survey Summary Report: Number and Type of Responses*, Rockville, MD: ASHA. Available online at: www.asha.org/uploadedFiles/2015-SLP-Health-Care-Survey-Summary.pdf (accessed 24 August 2015).

Barker-Collo, S., Jones, A., Jones, K., Theadom, A., Dowell, A., Starkey, N. and Feigin, V.L. (2015) 'Prevalence, natural course and predictors of depression 1 year following traumatic brain injury from a population-based study in New Zealand', *Brain Injury*, 29 (7-8): 859-865.

Baxter, S., Enderby, P., Evans, P. and Judge, S. (2012) 'Barriers and facilitators to the use of high-technology augmentative and alternative communication devices: A systematic review and qualitative synthesis', *International Journal of Language & Communication Disorders*, 47 (2): 115-129.

Beitchman, J.H., Brownlie, E.B. and Bao, L. (2014) 'Age 31 mental health outcomes of childhood language and speech disorders', *Journal of the American Academy of Child and Adolescent Psychiatry*, 53 (10): 1102-1110.

Bishop, D.V.M. (2003) *Children's Communication Checklist – Revised*, Second Edition, London: Psychological Corporation.

Appears in: Cummings, L. (2018) *Speech and Language Therapy: A Primer*, Cambridge: Cambridge University Press.

Blanton, M.G. and Blanton, S. (1920) *Speech Training for Children: The Hygiene of Speech*, New York: The Century Co.

Bryan, K., Freer, J. and Furlong, C. (2007) 'Language and communication difficulties in juvenile offenders', *International Journal of Language & Communication Disorders*, 42 (5): 505-520.

Centers for Disease Control and Prevention (2012) What are developmental disabilities? Online at: http://www.cdc.gov/ncbddd/developmentaldisabilities/features/birthdefects-dd-keyfindings.html. Accessed 23 August 2015.

Centre for Workforce Intelligence (2014) *Securing the Future Workforce Supply: Speech and Language Therapy Stocktake*, London: Author.

Cooper, M., Pettit, E. and Clibbens, J. (1998) 'Evaluation of a nursery based language intervention in a socially disadvantaged area', *International Journal of Language & Communication Disorders*, 33 (Suppl): 526-531.

Council of Academic Programs in Communication Sciences and Disorders & American Speech-Language-Hearing Association (2016) *Communication Sciences and Disorders (CSD) Education Survey National Aggregate Data Report*: *2014–2015 academic year*. Available at: http://www.asha.org/uploadedFiles/2014-2015-CSD-Education-Survey-National-Aggregate-Data-Report.pdf. Accessed 5 September 2016.

Crystal, D. and Varley, R. (1998) *Introduction to Language Pathology*, Fourth Edition, London: Whurr.

Cummings, L. (2009) *Clinical Pragmatics*, Cambridge: Cambridge University Press.

Cummings, L. (2014a) *Pragmatic Disorders*, Dordrecht: Springer.

Appears in: Cummings, L. (2018) *Speech and Language Therapy: A Primer*, Cambridge: Cambridge University Press.

Duchan, J.F. (2011) A history of speech-language pathology: Overview. Online, available at: www.acsu.buffalo.edu/~duchan/new_history/overview.html.

Goodglass, H., Kaplan, E. and Barresi, B. (2001) *Boston Diagnostic Aphasia Examination*, Third Edition, Baltimore, MD: Lippincott Williams & Wilkins.

Greenwood, N., Wright, J.A. and Bithell, C. (2006) 'Perceptions of speech and language therapy amongst UK school and college students: Implications for recruitment', *International Journal of Language & Communication Disorders*, 41 (1): 83-94.

Health and Social Care Information Centre (2014) *NHS Hospital and Community Health Service (HCHS) Workforce Statistics in England, Non-medical staff – 2003-2013, As at 30 September*. Available at: http://www.hscic.gov.uk/catalogue/PUB13741. Accessed 5 September 2016.

Health Workforce Australia (2014) *Australia's Health Workforce Series: Speech Pathologists in Focus*, Canberra: Health Workforce Division.

Kay, J., Lesser, R. and Coltheart, M. (1992) *Psycholinguistic Assessments of Language Processing in Aphasia*, Hove, UK: Lawrence Erlbaum Associates.

Kobayashi, Y., Tamiya, N., Moriyama, Y. and Nishi, A. (2015) 'Triple difficulties in Japanese women with hearing loss: Marriage, smoking, and mental health issues', *PLoS ONE*, 10 (2): e0116648.

Law, J., Rush, R., Schoon, I. and Parsons, S. (2009) 'Modeling developmental language difficulties from school entry into adulthood: Literacy, mental health, and employment outcomes', *Journal of Speech, Language, and Hearing Research*, 52 (6): 1401-1416.

<u>Appears in:</u> Cummings, L. (2018) *Speech and Language Therapy: A Primer*, Cambridge: Cambridge University Press.

Law, J., Reilly, S. and Snow, P.C. (2013) 'Child speech, language and communication need re-examined in a public health context: A new direction for the speech and language profession', *International Journal of Language & Communication Disorders*, 48 (5): 486-496.

Litosseliti, L. and Leadbeater, C. (2013) 'Speech and language therapy/pathology: Perspectives on a gendered profession', *International Journal of Language & Communication Disorders*, 48 (1): 90-101.

Lock, S., Wilkinson, R. and Bryan, K. (2001) *SPPARC: Supporting Partners of People with Aphasia in Relationships and Conversations*, Bicester: Winslow Press.

Marsh, K., Bertranou, E., Suominen, H. and Venkatachalam, M. (2010) *An Economic Evaluation of Speech and Language Therapy*, Matrix Evidence.

McAllister, J., Collier, J. and Shepstone, L. (2012) 'The impact of adolescent stuttering on educational and employment outcomes: Evidence from a birth cohort study', *Journal of Fluency Disorders*, 37 (2): 106-121.

Merrill, R.M., Anderson, A.E. and Sloan, A. (2011) 'Quality of life indicators according to voice disorders and voice-related conditions', *Laryngoscope*, 121 (9): 2004-2010.

Moseley, D., Clark, J., Baumfield, V., Hall, E., Hall, I., Miller, J., Blench, G., Gregson, M. and Spedding, T. (2006) *Developing Oral Communication and Productive Thinking Skills in HM Prisons*, London: Learning & Skills Research Centre.

Porter, E. (1831) *Analysis of the Principles of Rhetorical Delivery as Applied in Reading and Speaking*, Fourth Edition, New York: J. Leavitt.

Royal College of Speech and Language Therapists (2017) *Young Offenders and Criminal Justice*. Online: https://www.rcslt.org/about/young_offenders_and_criminal_justice/intro. Accessed 26 March 2017.

<u>Appears in:</u> Cummings, L. (2018) *Speech and Language Therapy: A Primer*, Cambridge: Cambridge University Press.

RTI International and CDC (2004) 'Economic costs associated with mental retardation, cerebral palsy, hearing loss, and vision impairment – United States, 2003', *Morbidity and Mortality Weekly Report*, 53 (3): 57-59.

Ruben, R.J. (2000) 'Redefining the survival of the fittest: Communication disorders in the 21st century', *Laryngoscope*, 110 (2 Pt 1): 241-245.

Schöttke, H. and Giabbiconi, C.M. (2015) 'Post-stroke depression and post-stroke anxiety: Prevalence and predictors', *International Psychogeriatrics*, to appear.

Scripture, E.W. (1912) *Stuttering and Lisping*, New York: The Macmillan Company.

Scripture, E.W. (1923) *Stuttering, Lisping and Correction of the Speech of the Deaf*, New York: The Macmillan Company.

Semel, E., Wiig, E.H. and Secord, W.A. (2003) *Clinical Evaluation of Language Fundamentals*, Fourth Edition, Australia: Psychological Corporation.

Whitworth, A., Perkins, L. and Lesser, R. (1997) *Conversation Analysis Profile for People with Aphasia (CAPPA)*, London: Whurr Publishers.

Whitworth, A., Webster, J. and Howard, D. (2005) *A Cognitive Neuropsychological Approach to Assessment and Intervention in Aphasia*, Hove: Psychology Press.

Yaruss, J.S. (2014) 'Disorders of fluency', in L. Cummings (ed.), *Cambridge Handbook of Communication Disorders*, Cambridge: Cambridge University Press, 484-497.

Appears in: Cummings, L. (2018) *Speech and Language Therapy: A Primer*, Cambridge: Cambridge University Press.