

on listening and auditory discrimination was not addressing the primary motoric deficit for children with developmental verbal dyspraxia.

In more recent times, it has been acknowledged that children with speech disorders, including developmental verbal dyspraxia, can have different profiles of speech processing breakdown (see diagnostic issues below and Chapter 3: Assessment for further discussion of this topic). Some children with developmental verbal dyspraxia will have auditory processing difficulties and therefore a therapy programme will need to be designed to address these difficulties.

## Diagnostic issues

### (a) Symptomatology lists

The use of symptomatology lists in diagnosing speech disorders is one common approach used in clinical practice. The clinician attempts to identify features from the child's speech pattern and other areas of performance from a checklist of characteristics, proposed for a particular disorder e.g. Jaffe 1984; Pollock and Hall 1991; Stackhouse 1992; McCabe et al 1998 have all produced checklists for developmental verbal dyspraxia. Also see this chapter for the characteristic lists used by speech and language therapists at the Nuffield Hearing and Speech Centre.

An extension of the symptomatology approach is to compare the characteristics of two different but related speech disorders e.g. dysarthria/dyspraxia; dyspraxia/phonological impairment in an attempt to make a differential diagnosis (See Tables 1 and 2 for examples of this dichotomy approach).

### Table 1: Differential diagnosis: Dyspraxia - Dysarthria

**Dyspraxia:** is a difficulty in initiating, in directing and in controlling the speed and duration of movements of articulation, which occurs in the absence of obvious neuromuscular abnormality (Milloy and MorganBarry 1990).

**Dysarthria:** is an impairment of movement and co-ordination of the muscles required for speech, due to abnormal muscle tone (Milloy and MorganBarry 1990).

#### Comparison between dyspraxia and dysarthria (Johns and Darley 1970)

Dyspraxia	Dysarthria
Inconsistency in articulation performance; difficulty in predicting errors	Speech errors are consistent and predictable
Most common types of articulation errors are substitutions and repetitions	Articulation errors are primarily distortions
Discrepancy between voluntary, purposeful and spontaneous reflexive performance	Accuracy of articulation does not vary with situations (spontaneous speech, reading or imitation)
Prosody - rate, rhythm, and stress of speech are adversely affected by repetitions, hesitations and groping articulation	Slow laboured speech is present with evidence of strain and tension, especially for difficult consonant clusters
Articulation is poorer as words increase in length	Articulation is poorer as words increase in length

## Table 2: Differential diagnosis: Dyspraxia - Phonological Disorder

**Verbal dyspraxia:** is a disorder of the implementation of articulatory gestures and/or programmed sequences of articulatory movements. Thus the child is not able to develop a normal phonological system.

**Phonological disorder:** is a disorder of the systematisation of meaning contrasts at word and morpheme level, dependent on a consistent inventory of consonants and phonotactic structures (i.e. CV, CC, CVCV etc) and a knowledge of the restrictions of their occurrence in English.

### Comparison between verbal dyspraxia and phonological disorder

Verbal dyspraxia	Phonological disorder
Unable to develop a system of speech sounds	Restricted system of speech sounds
Problems with vowels.	No vowel problems
Problem sequencing speech sounds	No problem of sequencing sounds
Do not generalise new sounds into a system	On learning a new sound, generalise it into their system
Prosodic problems common	Prosodic problems rare
Extremely slow progress in therapy and does not respond well to breaks	Progresses well with therapy, improves with maturity/consolidation
Oro-motor difficulties	No oro-motor difficulties
Word production can be worse in imitation than spontaneous production	Word production better in imitation than spontaneous production

**Dodd** (1995), in particular, has adopted a Subgrouping approach to the identification of speech disorders. She proposed 4 subgroups, based on detailed descriptions of speech output: delayed phonological development, consistent deviant phonological disorder, inconsistent deviant phonological disorder, and articulation disorder. An additional label of developmental verbal dyspraxia might be appropriate for children who have a multi-deficit motor speech disorder (Ozanne 1995).

In such an approach, a speech sample is analysed and evaluated and an attempt is made to find the best match for the identified speech characteristics.

However, the use of this subgrouping approach is not without pitfalls: the clinical validity of such diagnostic subgroupings (e.g. dyspraxic, phonological etc) depends on sound knowledge of the underlying theoretical distinctions, and a treatment protocol that is equally distinctive i.e. one assumes these form different treatment groups.

Although such an approach can clearly be helpful at times, it does rely on clear-cut matching between an individual child's speech profile and the labels. Difficulties can occur if the child does not seem to match any of the categories exactly. This is well illustrated by symptomatology lists proposed for developmental verbal dyspraxia, which have not proved simple to use. Questions over their use include:

- How many of the characteristics are required to make a diagnosis of developmental verbal dyspraxia?
- Are some symptoms more important than others?
- Will the presentation be different at different ages?