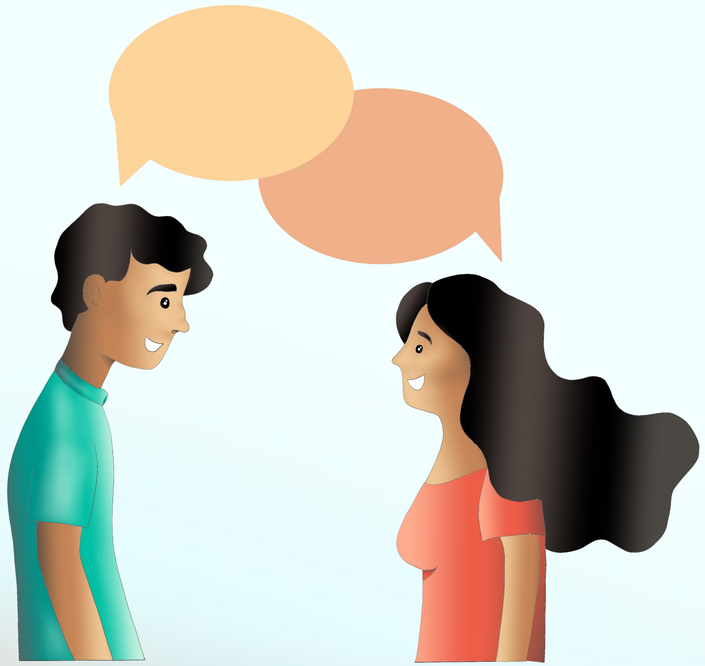

Speech Sound Disorders in a Bilingual Context

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Speech Sound Disorders (SSD)

Prevalence and risks

- 3.4% of children aged 4 years in an Australian sample (n=1494 participants)
  - (Eadie et al, 2015)
- High co-morbidity of language disorder and literacy difficulties, with 25% of children receiving school-based speech therapy for an SSD experiencing difficulties in word decoding
  - (Tambyraja et al., 2020)
- Most children have completed speech sound acquisition by 8 years of age, but a small percentage will experience persistent difficulties
  - (Wren et al., 2016)

SSD

Definitions

- SSD is **NOT** a diagnostic label, but a **category** of disorders.
- The exact diagnosis or diagnoses are a description of the **level of breakdown** and types of speech sound errors.
- The diagnosis should be **updated** as the child recovers and improves.
- There may be a **series** of diagnoses applied.
- The diagnosis applies to the observed **speech**, *not* the child.

SPEECH SOUND DISORDERS: CATEGORISATION

Physical and Motor:

Vocal tract or neurological aetiology

Articulation disorder

Cannot imitate sound in isolation

12.5% of referred children

Dysarthria

Strength and range of movement, slow or too rapid speech; Intonation disturbed, voice strength affected

Found in clinical sub-groups with a clear medical aetiology, e.g. Traumatic Brain Injury

Dyspraxia

Motor planning errors

Children with motor cortex lesions, like adults, will experience whole body dyspraxia, often affecting speech.

Developmental Verbal Dyspraxia / Childhood Apraxia of Speech is extremely rare and controversial. Recommended that Inconsistency be ruled out prior to diagnosis

PHONOLOGICAL DISORDERS

Psycholinguistic: No physical aetiology (Idiopathic); Hearing impairment such as Otitis media with effusion? Genetics?

Phonological delay

Errors found in younger children's speech

57.5% of referred children

Phonological disorder – Consistent

Errors NOT found in younger children's speech

20.6% of referred children

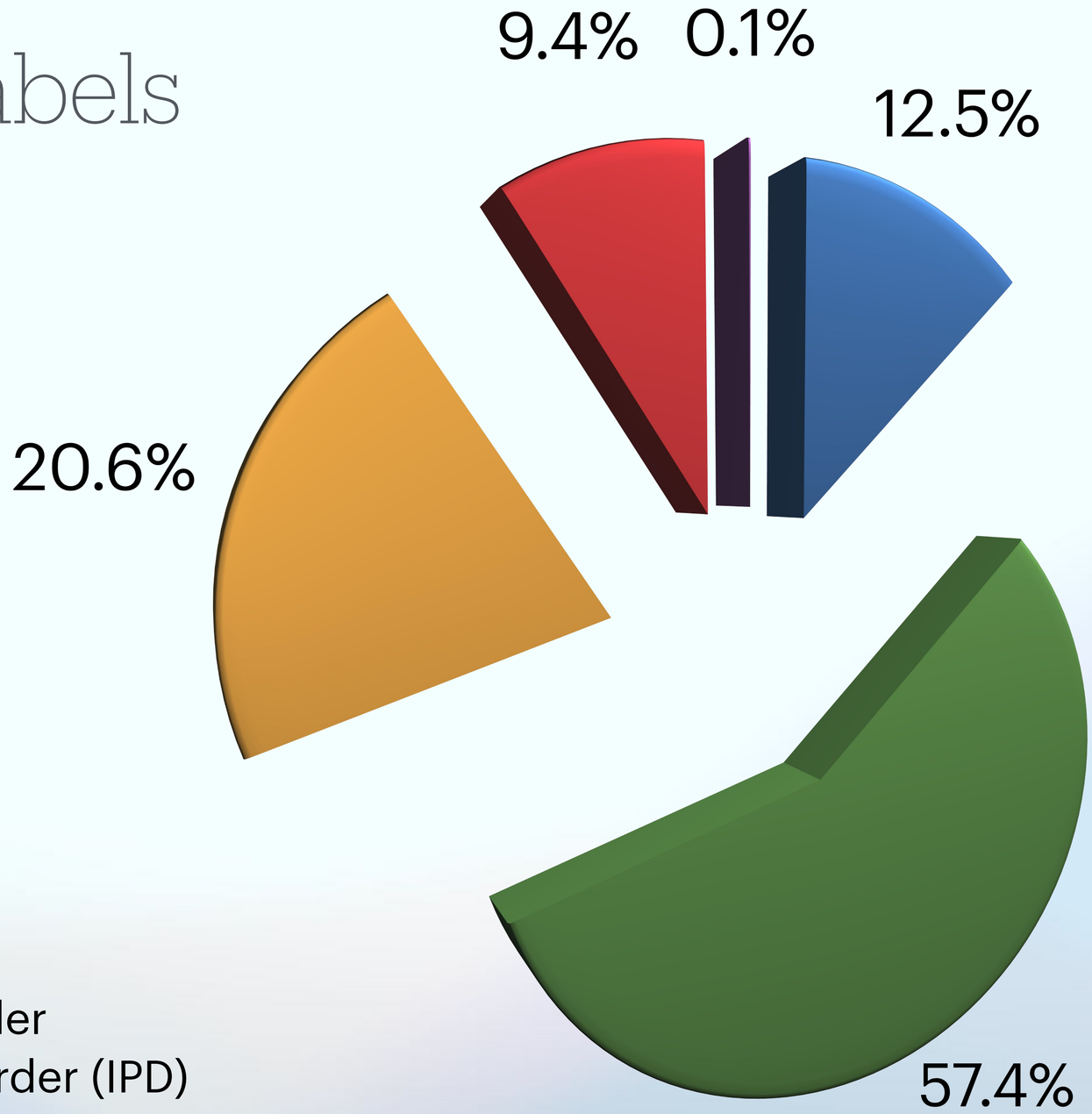
Phonological disorder – Inconsistent

WORDS produced differently each attempt

9.4% of referred children

Adapted from Dodd, Holm & McCormack, 2005, and Broomfield & Dodd, 2004

SSD diagnostic labels



Dodd's categories

- Can only be fully differentially diagnosed when using a **complete** speech assessment, such as the *Diagnostics Evaluation of Articulation and Phonology* (DEAP) in English (Dodd et al., 2002), **not a screening tool**
- A complete speech screen includes:
  - **Single word** naming
  - **Word** production consistency assessment
  - **Connected speech**
  - **Stimulability** of single phones (sounds)
  - Branching into more **in-depth assessment**

Assessment in a language you do not share with the family

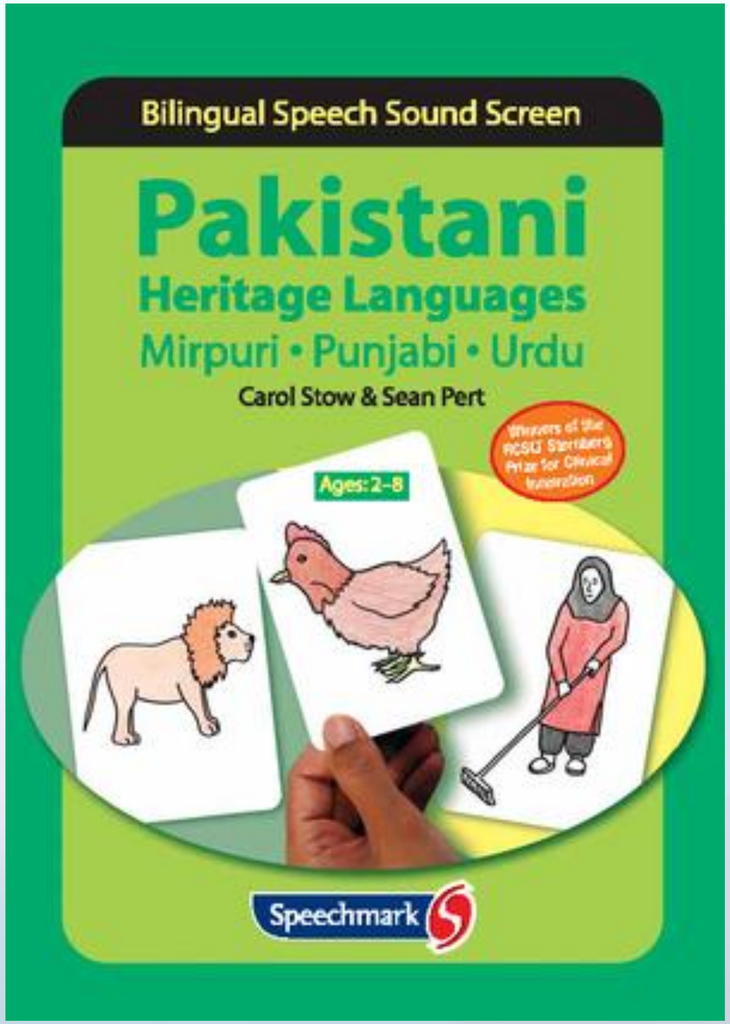
Speech MUST be assessed in both/all languages used

- Articulation errors will affect **both/all single sounds produced** as they are a result of differences in motor programming and/or the vocal tract
  - From minor differences such as missing teeth to more severe differences such as cleft lip and palate
- Phonological disorders (including phonological delay) will:
  - **only affect word level** and utterance level, NOT sound level
  - have **different patterns in each language** / or if the same be used in a different way
  - **not be explained by articulation disorder**
- See the **tutorial** on multilingual speech assessment by McLeod et al. (2017)

Example of an assessment in a language other than English

Bilingual Speech Sound Screen (BiSSS)

- Assessment in **home language**
- Includes phonemes not found in English
- Includes **word repetition** to detect IPD
- Includes **stimulability** to detect articulation disorder
- Suggestions for **other words** with phonemes in word initial/ within word or word final for therapy activities
  - (Stow & Pert, 2006, 2020)



Dodd's categories

- Applicable for all languages, as established by a series of case studies
- The bilingual children were found to use **different phonological processes** in each of their languages.
- When phonological processes were shared across languages, they were **not used in the same way**.
- The **surface speech errors** that the children made were therefore **specific to each of their languages**. (Holm, Dodd, Stow & Pert, 1999, p. 285)
- "… **a single deficit** underlies the speech disorder across both languages" (p. 271)

Differentiating SSD

Assessment

- **ARTICULATION DISORDER**:
  - NOT stimulable for phones (sounds) after an adult model
  - Physical or motor
  - Vocal tract level
  - **DISTORTIONS** - doesn't change the meaning but is not on target
  - **ARTICULATION DISORDER WITH PHONOLOGICAL IMPLICATIONS**
    - The error is another phoneme of that language, but the error is physical/motor
    - May APPEAR to be a phonological process, but needs treatment at phone level

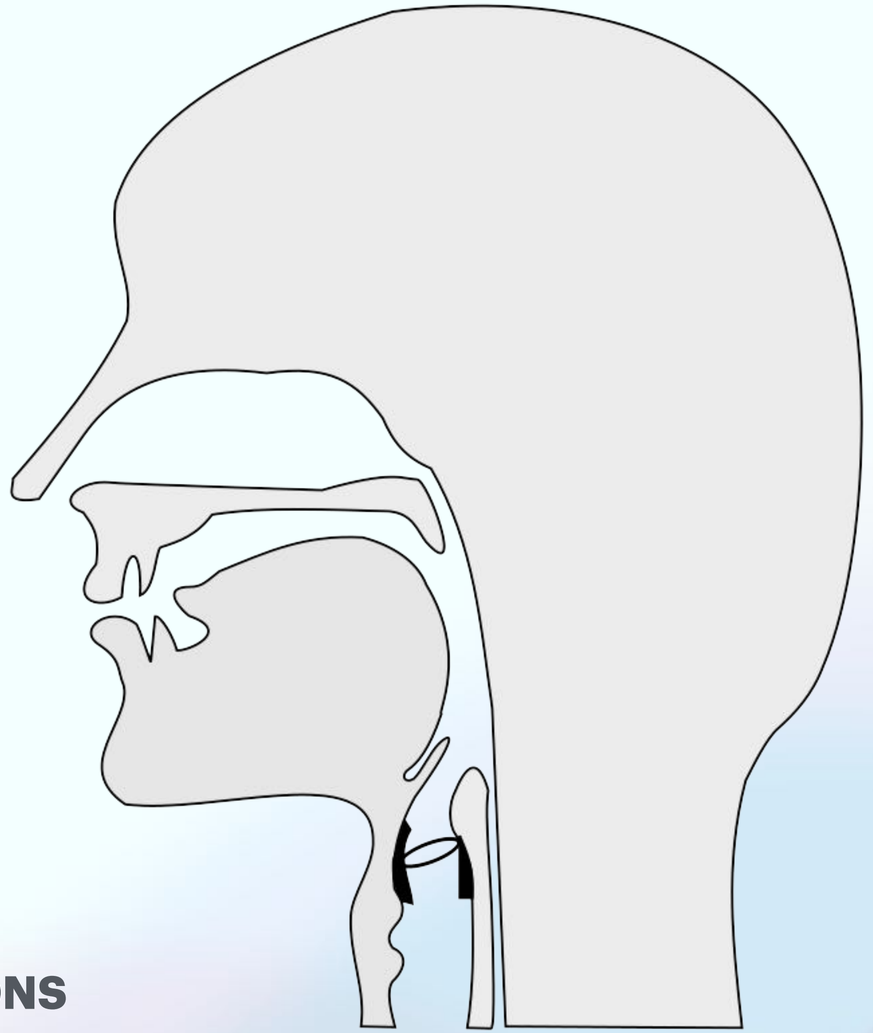
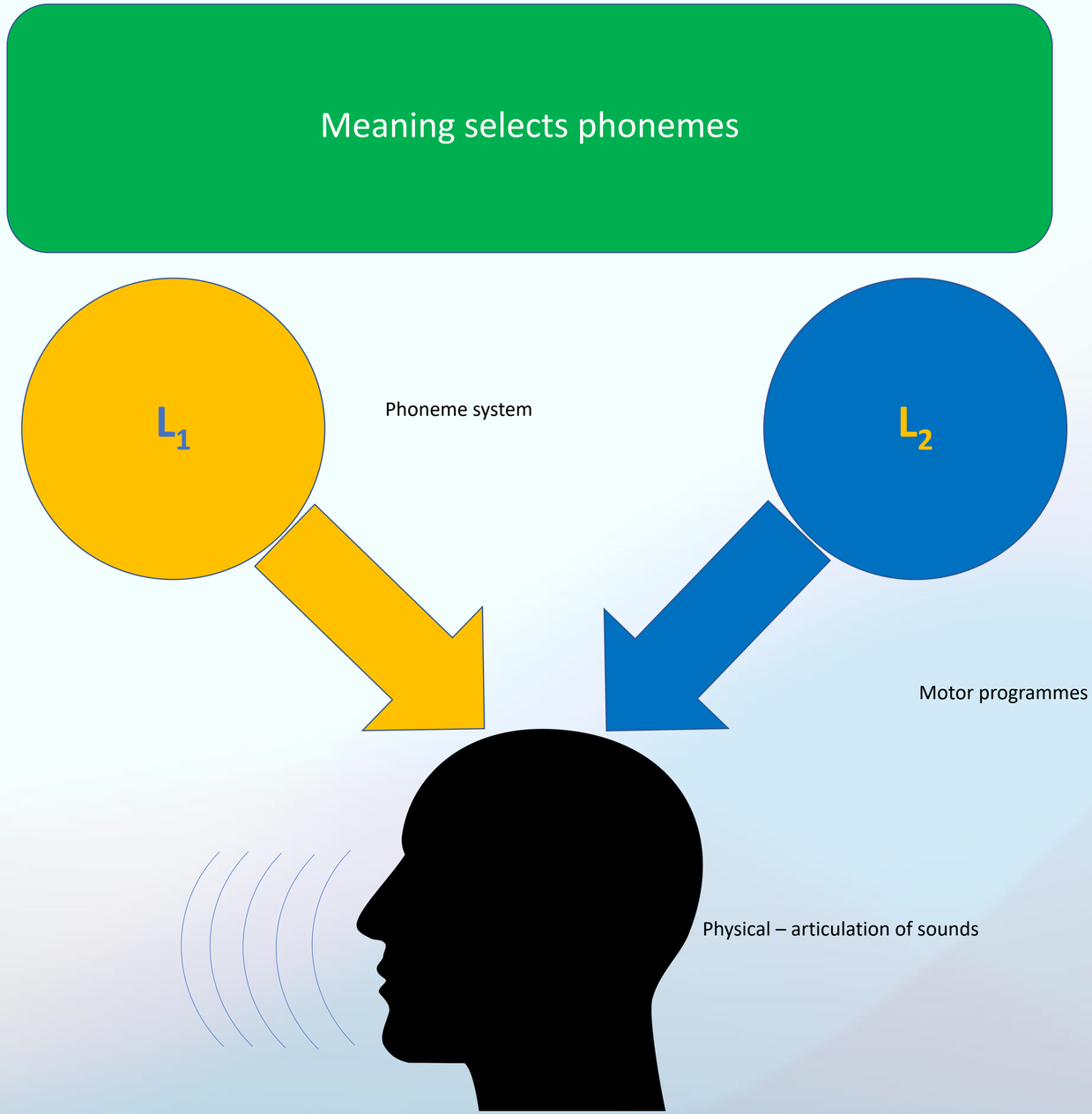


Image: Tavin, 2011

Differentiating SSD

Assessment

- **PHONOLOGICAL DISORDERS**:
  - Stimulable for the target and realisation (so NOT a physical or motor speech disorder).
  - Present at **word level**, but not sound level.
  - Affects **meaning** as contrast is lost.
  - Errors in mapping meaning onto the speech sound code.



Differentiating SSD

Assessment

- **Phonological delay**
  - The error patterns are observed **in the speech of younger children**.
  - Normative data indicates that 90% of children have resolved the error by a certain age.
  - Most frequently encountered.
  - Age at which processes are suppressed depends on the normative data, and if considering a monolingual or bilingual population.

Differentiating SSD

Assessment

- **Consistent Phonological Disorder**
  - The error patterns are **NOT** observed **in the speech of younger children**.
  - Unusual at **ANY** age.
  - No normative data as typically developing children do not use these error patterns.
  - May be specific to the child.
  - Error patterns (phonological processes) are **consistent** and **predictable**.

Differentiating SSD

Assessment

- **Inconsistent Phonological Disorder (IPD)**
  - The child realises **WORDS** differently on each occasion.
  - Inconsistent word realisations >40%.
  - Error patterns (phonological processes) are **NOT** present, as the child will likely say the word set differently if assessed on another occasion.
  - Can only be detected by **asking the child to name a word set two or more times** and compare the word realisations.
  - **Most often confused with CAS.**

Differentiating SSD

Assessment

- **Childhood Apraxia of Speech (CAS)**
  - Very rare, but severe condition: **1 child per 1,000**
  - **0.2% - 0.4% of referred children** (compared with 80-90% with phonological delay or disorder)
  - **Greater incidence** in children with known neurodevelopment conditions
  - **Often confused with IPD**, especially if assessment does not involve word repetition.
  - Therefore there is a **risk of over diagnosis**
    - See RCSLT, 2024

Referral for SSD in bilingual children

- Languages spoken by bilingual children are often misreported (Stow & Dodd, 2005)
  - "Only **45%** of bilingual children had their language correctly recorded on the referral form" (p. 10)
  - "…bilingual children with articulation or phonology problems **are not being identified**." (p.14)
- There is a need to **train referring agents**.
- Language barrier and **lack of awareness of services** are barriers to referral

Treatments for SSD

Targeting the level of breakdown in the speech chain

- **ARTICULATION**:
  - Articulator placement, drill work (repetition of production of the phone), feedback including visual (mirror work), articulograms, imitation of adult.
  - Do NOT use a C, CV, CVC word-building approach for phonological errors - ineffective!
  - Avoid CV, VC and CVC blending work if this forms a word with meaning in any of the child's languages, as this may trigger the phonological programme.
  - Use **nonsense CV, VC and CVC** drill and blending work, before moving onto real lexical items.
  - **Need to include phones from both/all languages**

Treatments for SSD

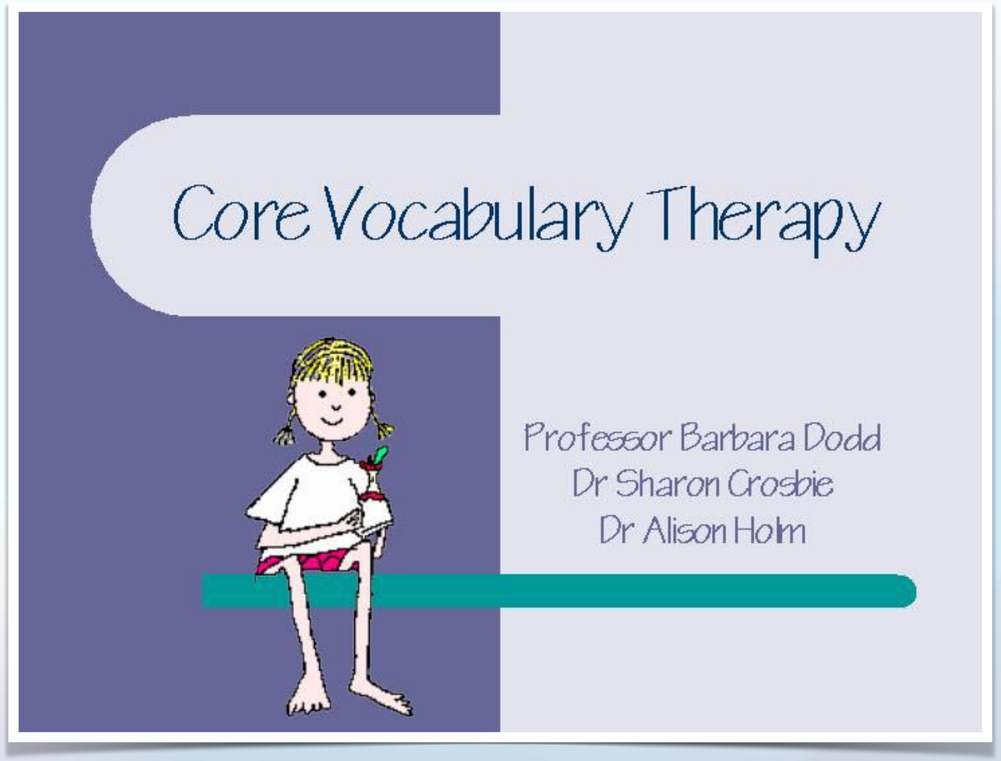
Targeting the level of breakdown in the speech chain

- **PHONOLOGICAL DELAY and CONSISTENT PHONOLOGICAL DISORDER**:
  - Mild-Moderate SSD
    - Conventional Meaningful Minimal Pairs
  - For children with moderate to severe SSD, consider
    - Maximal Oppositions
    - Multiple Oppositions
  - See **tutorial** by Storkel (2022)

Treatments for SSD

Targeting the level of breakdown in the speech chain

- **INCONSISTENT PHONOLOGICAL DISORDER**:
  - Work on developing **word templates**
  - **The child has to develop these templates**
  - Comprehensive therapy package: **Core Vocabulary Approach**
    - (Dodd, Crosbie & Holm, 2004)
  - **Principles are language independent**



Bilingual and multilingual contexts

- Universal aspects of SSD:
  - **Structural errors**: Omission/Deletion of consonants; addition/insertion errors; syllable structure
  - **Substitution errors**: One phone is replaced with another.
- Effects are:
  - Reduction in contrast
  - **Reduction in intelligibility**.

Steps to establishing an effective service

- **Assessment and treatment in home language(s) to be effective**
- Phonological inventory of both/all languages
- Age of acquisition of phones
  - Monolingual → Sequential bilingualism
  - Simultaneous bilingualism
- Phonological processes present and age of elimination
- Increasingly available research data on different languages


www.speechtherapy
.co.uk

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