SPAU 328

Principles of Evaluation, Diagnosis, and Report Writing in ComD

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Assessment of Speech Sound Disorders

Purpose of articulation assessment

- Describing the articulatory or phonological development and status of the client
- Determining whether the individual's speech sufficiently deviates from normal expectations to warrant concern or intervention
- Identifying factors that relate to the presence or maintenance of the speech disorder
- Determining the need of treatment and its prognosis
- Monitoring changes in articulatory or phonological abilities and performance acrosstime

Components of articulation and phonological evaluation

- ✓ History of the client (written case history, information-gathering interview, information from other professionals)
- ✓ Direct assessment of speech sounds production
- ✓ Orofacial Examination
- ✓ Hearing Assessment
- ✓ Language Assessment
- ✓ Determining the Diagnosis
- ✓ Providing Information (written report, interview, etc.)

IPA symbols for Arabic

IPA symbols for Arabic phonemes

Arabic transcript	IPA	Arabic transcript	IPA	Arabic transcript	IPA	Arabic transcript	IPA
ء	/ʔ/	د	/d/	ض	/dˤ/	ق	/q/
ب	/b/	ذ	/ð/	ط	/tˤ/	ل	/l/
ت	/t/	ر	/r/	ظ	/ðˤ/	م	/m/
ث	/θ/	ز	/z/	ع	/ʕ/	ن	/n/
ج	/ʒ/	س	/s/	غ	/ɣ/	و	/w/
ح	/ħ/	ش	/ʃ/	ف	/f/	ه	/h/
خ	/x/	ص	/sˤ/	ك	/k/	ي	/j/

Screening of articulation or phonological disorder

What is the purpose of it?

Give example activities you can use to screen for speech sound disorders?

Formal tests

- These tests assess sounds in the initial, medial, and final positions of words.
- Usually they **are quick** and allow assessments in a **systematic way.**
- **Downside of using such tests include:**
  - Not all phonetic contexts are examined (limited words)
  - We are only looking at word-level production
  - Only consonants are tested
  - Do not tell us whether an articulatory error is developmentally appropriate or not
  - Not reliable to evaluate clients with variable disorders (e.g., apraxia)

Language (dialect)	Name of test (or *word list*)	Reference	Access/ purchasing information
Arabic – Egyptian (العربيَّة)	Mansoura Arabic Articulation Test (MAAT)	Abou-Elsaad, T., Baz, H. & El-Banna, M. (2009). Developing an articulation test for Arabic-speaking school-age children. *Folia Phoniatrica et Logopaedica, 61*(5), 275–282.	Journal article
Arabic – Kuwaiti (العربيَّة)	Kuwaiti Arabic Phonology Test	Ayyad, H., Bernhardt, B. M., & Stemberger, J. P. (2012). *Kuwaiti Arabic Phonology Test*. Kuwait University, Kuwait; University of British Columbia, Vancouver, Canada.	Free download*
Arabic – Kuwaiti (العربيَّة)	Kuwaiti Arabic single word list	Ayyad, H. S., Bernhardt, B. M., & Stemberger, J. P. (2016, in press). Kuwaiti Arabic: acquisition of singleton consonants. *International Journal of Language and Communication Disorders*, 10.1111/1460-6984.12229	Journal article
Arabic – Jordanian (العربيَّة)	Amayreh Articulation Test	Amayreh, M. M. & Dyson, A.T. (1998). The acquisition of Arabic consonants. *Journal of Speech, Language, and Hearing Research 41*, 642–653.	Journal article
Arabic – Jordanian (العربيَّة)	Amayreh Articulation Test: Modified	Hamdan, J. M. & Amayreh, M. M. (2007). Consonant profile of Arabic-speaking school-age children in Jordan. *Folia Phoniatrica et Logopaedica, 59*(2), 55–64.	Journal article

Identifying Sound Errors from a Speech Sample

Number of errors	Error types	Consistency of errors between the speech sample and the articulation test, within the	same speech sample, and between different speech samples
Correctly produced sounds	Intelligibility	Speech rate	Prosody

Stimulability

Stimulability refers to a client's ability to produce a correct (or improved) production of an erred sound.

How are these information useful?

Developmental norms for phonemes and blends

What is meant by developmental norms?

Possible drawbacks?

Developmental Norms For Phonemes in Arabic (Amayreh & Dyson, 1998)

Table 3. Comparison between acquisition ages of consonants in Arabic (acquisition = 75% correct in all positions tested) and in three studies of English.

Sound	Arabic		English		
	Standard	Acceptable	Smit et al., 1990[1]	Prather et al., 1975[2]	Templin, 1957
/b/	3:0–3:4	3:0–3:4	≤3:0, ≤3:0	2:8	4:0
/t/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:8	6:0
/d/	3:0–3:4	3:0–3:4	≤3:0, ≤3:0	2:4	4:0
/k/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:4	4:0
/f/	2:6–2:10	2:6–2:10	≤3:0, 3:6	2:4	4:0
/θ/	>6:0–6:4	5:0–5:4	5:6, 6:0	>4:0	6:0
/ð/	>6:0–6:4	>6:0–6:4	4:0, 5:6	4:0	6:0
/s/	5:0–5:4	5:0–5:4	3:0, 5:0	3:0	4:6
/z/	>6:0–6:4	>6:0–6:4	5:0, 6:0	>4:0	7:0
/ʃ/	5:0–5:4	5:0–5:4	4:0, 5:0	3:8	4:6
/dʒ/	>6:0–6:4	4:0–4:4	4:6, 4:0	>4:0	7:0
/h/	5:0–5:4	5:0–5:4	≤3:0, ≤3:0	2:0	≤3:0
/m/	≤2:0–2:4	≤2:0–2:4	≤3:0, ≤3:0	2:0	≤3:0
/n/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:0	≤3:0
/l/	3:6–3:10	3:6–3:10	4:6, 6:0	3:4	6:0
/r/	5:6–5:10	5:6–5:10	6:0, 5:6	3:4	4:0
/w/	2:6–2:10	2:6–2:10	≤3:0, ≤3:0	2:8	≤3:0
/j/	6:0–6:4	2:6–2:10	3:6, 3:6	2:4	3:6

[1]Ages of girls, then boys
[2]Sounds tested in only two positions with percentages for two positions averaged

Extra Self-study (if you wish)

01

The Frequency of Occurrence of Consonants

02

Descriptive features of phonemes

03

Distinctive features of consonants

Phonological processes

- **Phonological processes** describe what children do in the normal developmental process of speech to simplify standard adult productions.

- Why do we use the analysis of phonological processes in the assessment of articulation disorders?

Process	Description	Example
Alveolarization	Alveolar sounds phoneme replace labial or linguadental phonemes.	/don/ for bone
Assimilation	Target phoneme is influenced by, and becomes more like, a surrounding phoneme	/gug/ for dog
Backing	Substitution of a more posteriorly produced phoneme for an anteriorly produced phoneme:	/kAp/ for *top*
Cluster Reduction	Reduction of a cluster to singleton	/sip/ for *sleep*
Coalescence	Substitution of a single phoneme that is different from two adjacent target phonemes yet takes on features of the target	/tufe/ for Tuesday
Deaffrication	Substitution of a fricative for an affricate phoneme:	/SIz/ for *cheese*

Process	Description	Example
Final consonant deletion	Deleting final consonant	/ca/ for cat
Denasalization	Substitution of a homorganic stop (similar place of articulation) for a nasal phoneme:	/do/ for no
Depalatalization	Substitution of an alveolar fricative or affricate for a palatal fricative or affricate::	/dZu/ for *cue*
Diminutization	Addition of /i/ or consonant + /i/:	/lEgi/ for *leg*
Doubling	Doubling	/gogo/ for *go*
Epenthesis	Insertion of a new phoneme:	

Process	Description	Example
Fronting	Substitution of a more anteriorly produced phoneme:	/frOd/ for *frog*
Gliding	Subtituion of a glide for a liquid	/wun/ for run
Initial consonant deletion	Deletion of the initial singleton consonant	/up/ for cup
Labialization	Substitution of a labial phoneme for a phoneme produced with the tip of the tongue:	/bOg/ for *dog*
Metathesis	Transposition of two phonemes:	/likstIp/ for *lipstick*
Reduplication	Repetition of a complete or incomplete syllable:	wAwA/ for *water*

Process	Description	Example
Stopping	Substitution of a stop for a fricative or affricate:	/top/ for *soap*
Stridency deletion	Omission of a strident or the substitution of a nonstrident consonant:	/op/ for *soap*
Unstressed syllable deletion	Deletion of an unstressed syllable:	/gEdI/ for *spaghetti*
Voicing or devoicing	Alteration in voicing influenced by a surrounding phoneme:	/beg/ for *bake*
Vocalizaiton	Substitution of a vowel for a liquid phoneme in the final position:	/kovU/ for *cover*

TABLE 6-7 Developmental Norms for Phonological Processes

AGE OUTGROWN	PHONOLOGICAL PROCESS
Gone by age 3	Denasalization
	Doubling
	Assimilation
	Diminutization
	Reduplication
	Prevocalic voicing
	Final consonant devoicing
	Stopping /f/ and /s/
Gone by age 4	Final consonant deletion
	Fronting
	Consonant assimilation
	Unstressed syllable deletion
	Cluster reduction
	Deaffrication
	Stopping /v/ and /z/
Gone by age 5	Alveolarization
	Depalatalization
	Stopping /ʃ/, /tʃ/, /dʒ/, /θ/, and /ð/**
Gone by age 6	Gliding
	Labialization
Gone by age 8	Epenthesis

Childhood Apraxia of Speech

- **Childhood apraxia of speech (CAS)** is a motor speech disorder. A child with CAS has difficulty sequencing sounds, syllables, and words for speech in the presentence of normal muscle structure and function.

- **Etiology**: Unknown, or secondary to a genetic disorder, or acquired from neurological damage.

- The diagnosis of CAS is challenging. Why?

Childhood Apraxia of Speech

Features of CAS:

- Inconsistent errors on consonants and vowels in repeated productions of syllables or words
- Lengthened and disrupted co-articulatory transitions between sounds and syllables
- Inappropriate prosody

Differential diagnosis

- Automatic versus volitional actions
- Single postures versus sequences of postures
- Simple contexts versus more complex or novel contexts
- Repetitions of the same stimuli versus repetitions of varying stimuli
- Tasks for which responses can be judged after auditory versus visual cues, auditory versus tactile cues, visual versus tactile cues, or which combinations (e.g., auditory and visual) seem to produce the best results.
- Fluidity, rate, and accuracy of speech in relationship to one another
- Performance of tasks in multiple contexts (e.g., spontaneous speech, imitation, elicited speech, discourse, utterances of varying lengths, etc.)
- Impaired auditory comprehension

Differential diagnosis

- Impaired verbal expression
- Presence of paraphasias
- Perseveration
- Agrammatism, or grammatical errors
- Nonfluent speech or nonmeaningful fluent speech
- Impaired prosodic features of speech
- Difficulty repeating words, phrases, and sentences