

Phonological-based Interventions

Pattern-based approaches

An approach to treating speech sound disorders that is based on the systemic nature of phonology (i.e., understanding the phonological rules of a language that are stored in the mind and how to apply those rules). Rather than focusing on motoric activities (characteristic of articulation therapy), pattern-based approaches are characterized by conceptual activities. The goal is not to teach new sounds, as children with phonological impairments typically can produce the sounds; the difficulty most often lies in learning to produce the correct sound in the correct context. For example, the correct phonological rules must sometimes be taught to a child to replace patterns he or she has developed, such as learning to place initial sounds within words rather than omitting them.

Phonologically-based intervention

Intervention that focuses on a child's overall understanding of a language's phonological rules. In contrast to traditional articulation therapy, phonologically-based intervention focuses on remediating a child's impaired phonological system (conceptual) rather than physical, articulatory movements (motor).

See *Pattern-based approaches*

*Multiple forms of phonologically-based intervention exist, including minimal pairs, maximal oppositions, multiple oppositions, and empty set.

Note: The contrastive intervention approaches described below have been created to provide intervention in the English language. Due to differences in the phonological structures of other languages compared to English, certain approaches may not be as effective when used the same way in other languages.

Minimal Pairs

Targets consist of two words that differ in meaning due to a phoneme that differs by one sound or feature. For example, the presence or absence of a sound could be considered a minimal contrast, such as in the words *up* and *cup*. One feature of a phoneme may also be different, either in place, manner, or voice (e.g., *bat/pat*). The child's attention could be drawn to the fact that the differences in the sounds used affect the meaning of the words.

Multiple Oppositions

This approach is similar to minimal pairs, though includes multiple targets that contrast (or differ in a single feature) from the child's production, resulting in a larger contrastive treatment set. This approach is helpful for children who incorrectly produce a single pattern for multiple adult productions. A few studies that contrasted 'minimal pair' and 'multiple oppositions' approaches observed that it was easier for children to integrate new contrasts phonemically from a diverse rule pattern using multiple oppositions.

This approach can be used for substitution errors at the phoneme level or for errors affecting the syllable structure, such as initial consonant deletion, final consonant deletion, and cluster reduction. An example of targets for final consonant deletion could include: *bee: beet, beam, beach, bees, bean*.

Maximal Oppositions

Contrasting target pairs are chosen that differ on several phonetic features. This approach helps children to focus on the wide differences between sounds. For example, two targets with phonemes that differ in both manner and voicing (e.g., /s/ and /d/) may be chosen as contrastive pairs. As another example, 'bun' and 'sun' differ in place (labial vs. alveolar), manner (stop vs. fricative) and voice (voiced vs. voiceless). The pairs that are presented contain one sound with which a child is familiar to contrast with a target sound.

Of note, numerous targets are not necessarily more effective for this approach. A smaller number of carefully selected targets has been shown to result in children spontaneously generalizing to other words containing the target sounds (Elbert, Powell and Swartzlander, 1991).

Empty Set

In contrast to maximal oppositions, in which a sound the child can produce is contrasted with a phonetically dissimilar sound, treatment incorporating an empty set consists of word pairs of two target sounds that a child is unable to produce. In other words, each word in the pair contains an unfamiliar target sound.

Cycles Approach

A specific type of pattern-based approach designed to be used with highly unintelligible children. Phonological processes are carefully and systemically chosen to target in cycles, in which one phonological process is targeted for a brief period of time (i.e., 1-2 hours). Additional phonemes and then patterns are included in the cycle, then the patterns are recycled, adding complexity with each ensuing cycle. One full cycle typically requires approximately 6-18 hours of intervention, and children with severely disordered phonological systems often require 3 or 4 cycles to become intelligible. One central idea is that a large number of targets is not necessarily needed to teach a phonological rule. Optimal phonetic targets, or facilitative phonetic contexts (e.g., those that do not contain a contrasting phoneme) are preferred. For example, "dog" would be an inappropriate target to teach alveolar sounds for a child who is backing because it contains a velar /g/. Contrastive pairs (e.g., /t, k/) are not included until late in therapy when secondary patterns are targeted. Focused auditory stimulation (previously called 'Auditory Bombardment') is also used in a cycles approach at the beginning and end of a session to help the child to attend to the process being targeted. During this auditory stimulation, the child listens through headphones to a spoken list of 15-20 words for approximately 30 seconds or less.

Eight underlying concepts of the Cycles approach (adapted from Hodson, 2010) are:

1. Children with normal hearing typically acquire the adult sound system primarily by listening.
2. Phonological acquisition is a gradual process.
3. Phonetic environment in words can facilitate or inhibit correct sound productions.
4. Children associate auditory and kinesthetic sensations that enable later self-monitoring.
5. Children generalize new speech production skills to other targets.
6. An optimal 'match' facilitates learning.
7. Children learn best when they are actively involved/engaged in phonological remediation.
8. Enhancing a child's metaphonological skills facilitates enhances the child's speech. improvement and also development of early literacy skills.

For additional information, refer to resources by Barbara Hodson.

Sources

Stoel-Gammon and Dunn (1985, p. 168)

Bowen, C. (2013) PACT: A broad-based approach to phonological intervention – theoretical background and evidence... Retrieved on 10/23/14 from http://speech-language-therapy.com/index.php?option=com_content&view=article&id=121:pact-2&catid=11:admin&Itemid=121

Bowen, C. (2013) Cycles Phonological Pattern Approach (CPPA)...

http://speech-language-therapy.com/index.php?option=com_content&view=article&id=75:cycles&catid=11:admin&Itemid=108

Williams, A.L. (____) Multiple oppositions intervention

**chapter in a book

Elbert, Powell and Swartzlander (1991)

**This table may also be helpful:

Comparison of Four Minimal Pair Approaches

PRINCIPLE	Homonymy	Saliency	Homonymy	Saliency
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APPROACH	Conventional Minimal Pairs	Maximal Oppositions	Multuple Oppositions	Empty Set / Unknown Set
REFERENCES	Weiner 1981a	Gierut 1989	Williams 2006b	Gierut 1989
CONTRASTS	ERROR-TARGET	CORRECT-TARGET	ERROR-TARGETS	ERROR-ERROR
	The child's error is paired with the target.	The child's error is paired with a sound the child can say.	The child's error is paired with up to 4 targets.	Two errors are paired as targets.
# TARGETS	1 new sound	1 new sound	Up to to 4 new sounds	2 new sounds
FEATURE DIFFERENCE	Minimal or maximal, but usually minimal.	Maximal	Maximal to minimal across a treatment set.	Maximal
SSD SEVERITY	MILD-MODERATE SSD	SEVERE SSD	SEVERE SSD	SEVERE SSD
APPROACH	Linguistic	Linguistic	Linguistic	Linguistic
PICTURES AND WORDS	<u>Minimal Pairs</u>	<u>Max Oppositions</u>	<u>Word lists to help make Multiple Opposition sets.</u>	<u>Max Oppositions</u>

http://speech-language-therapy.com/index.php?option=com_content&view=article&id=79:mp&catid=11:admin