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When children learn to speak, they need to use a wide range of sounds. However, due to the complexity of speech sounds and the cognitive demands of language learning, children may experience difficulties producing and perceiving certain sounds. So, children pronounce words the best way they can. That is why children pronounce words like rain as wain or plane as pane. While this may be cute, it is a normal aspect of language learning that is worth examining. Children do this because they are learning to synchronize the movements of their tongue, lips, jaw, teeth, and palate in order to produce speech sounds, and all children make errors in their speech sounds during this process. Phonological processes are patterns of sound substitutions that children employ to simplify their speech. Phonological processes are the predictable patterns of speech errors used by typically developing children to simplify their speech as they learn to talk. While young children hear the speech sounds of the language being used around them but are unable to produce all of them yet. This is because they do not possess the ability to coordinate the tongue, lips, teeth, palate, and jaw for clear speech. Therefore, they simplify complex words in predictable ways until they develop the coordination necessary to articulate clearly. As a result, their speech does not resemble that of adults. It would be overwhelming for a young child's brain to attempt to speak with all of the sounds an adult can produce. To make speaking easier, the child's brain develops rules, known as phonological processes, to simplify speech sounds and make words easier to say. For instance, producing sounds at the back of the mouth, such as /k/ and /g/, can be challenging for young children. Many children simplify this by implementing a rule (the phonological process) that says that for a sound produced at the back of the mouth, change it to a sound produced at the front of the mouth (where it's easier). As a result, /k/ becomes /t/, and /g/ becomes /d/. This explains why it's typical for young children to say "titty tat" instead of "kitty cat." It's important to note that these rules are beyond the child's control. They do not choose to omit consonants at the end of words or alter sounds. Their brain does it automatically, and they may not even be aware that they're doing it. At certain ages, we anticipate that children will use phonological processes. Its only a problem when children don't attempt to outgrow the use of these processes beyond the typical period. While most children naturally outgrow this stage, others may require speech therapy to overcome it. All children use some types of phonological processes. Let us explore the types so that you can understand how they work. Here are some types of typical phonological processes: Assimilation is a phonological process in which a sound becomes more similar to a neighboring sound in a word, due to the influence of that neighboring sound. For example, if a child says "gog" instead of "dog", this is an example of assimilation, as the /g/ sound becomes more like the following /d/ sound in the word. Another example is when a child says "baba" instead of "bottle", where the /t/ sound is replaced by the /b/ sound from the previous syllable. This is known as regressive assimilation. Assimilation is a common phonological process that occurs when one sound in a word is influenced by another sound and becomes more similar to it. Here are some examples of assimilation in children: Nasal Assimilation: This occurs when a non-nasal consonant becomes nasal due to the influence of a neighboring nasal consonant. For example, the word "tent" may be pronounced as "tɛnt" because of the influence of the nasal "n" sound. Labial Assimilation: This occurs when a non-labial consonant becomes a labial consonant due to the influence of a neighboring labial consonant. For example, the word "cup" may be pronounced as "pʊp" because of the influence of the labial "p" sound. Velar Assimilation: This occurs when a non-velar consonant becomes a velar consonant due to the influence of a neighboring velar consonant. For example, the word "dog" may be pronounced as "gog" because of the influence of the velar "g" sound. Voicing Assimilation: This occurs when a voiceless consonant becomes voiced due to the influence of a neighboring voiced consonant. For example, the word "cat" may be pronounced as "gat" because of the influence of the voiced "g" sound. Devoicing Assimilation: This occurs when a voiced consonant becomes voiceless due to the influence of a neighboring voiceless consonant. For example, the word "bed" may be pronounced as "pet" because of the influence of the voiceless "p" sound. Dissimilation is a phonological process in which a child changes a sound in a word to make it more distinct from another sound in the same word. The goal of dissimilation is to make the word easier to say or to avoid a difficult sound sequence. For example, a child might pronounce the word "yellow" as "yewlow" to avoid the difficult sequence of two "l" sounds. Similarly, the child might pronounce the word "spaghetti" as "pasketti" to avoid the difficult sequence of two "s" sounds. Dissimilation is a common phonological process in young children's speech development, and it typically disappears as their speech becomes more mature. Parents and caregivers can help children overcome dissimilation by modeling correct pronunciation and providing gentle correction when needed. There are several types of dissimilation that can occur in children's speech. Here are some examples: Regressive dissimilation: In this type of dissimilation, a sound that comes later in the word influences the sound that comes before it. For example, a child might pronounce the word "apple" as "apɛp" because the "l" sound is influenced by the "p" sound that comes after it. Progressive dissimilation: In this type of dissimilation, a sound that comes earlier in the word influences the sound that comes after it. For example, a child might pronounce the word "banana" as "banano" because the second "n" sound is influenced by the first "n" sound. Total dissimilation: In this type of dissimilation, a sound is completely changed or eliminated from the word. For example, a child might pronounce the word "spoon" as "poon" because the "s" sound is eliminated. Partial dissimilation: In this type of dissimilation, a sound is changed only slightly from its original pronunciation. For example, a child might pronounce the word "water" as "wawa" because the "t" sound is changed to a "w" sound. These types of dissimilation can occur in combination with other phonological processes, such as deletion, substitution, and addition, as children develop their speech skills. Deletion is a common phonological process in which a child omits or leaves out a sound or syllable in a word. This process is a natural part of children's speech development as they learn to produce more complex sounds and syllables. There are several types of deletion that can occur in children's speech: Final consonant deletion: In this type of deletion, a child leaves off the final consonant in a word. For example, the word "cat" may be pronounced as "ca." Cluster reduction: In this type of deletion, a child leaves off one or more consonants in a consonant cluster. For example, the word "stop" may be pronounced as "top." Cluster reduction is a phonological process in which a child simplifies a group of consonant sounds by turning them into a single sound or a more manageable combination of sounds, as seen in examples like "poon" for "spoon" and "tuck" for "truck." Typically, this process should resolve by age 4 for words without /s/ and by age 5 for words with /s/. Syllable deletion: In this type of deletion, a child leaves off an entire syllable in a word. Weak Syllable Deletion is a phonological process in which a child deletes an unstressed syllable in a word, such as saying "nana" for "banana" or "puter" for "computer." Typically, this process resolves by the age of 4. Unstressed syllable deletion: In this type of deletion, a child leaves off an unstressed syllable in a word. For example, the word "potato" may be pronounced as "tato." It's important to note that while deletion is a normal part of children's speech development, it should decrease as a child's speech becomes more mature. If a child is still exhibiting significant deletion patterns past a certain age (typically around 4-5 years old), it may be a sign of a speech or language disorder and professional intervention may be needed. Epenthesis is a phonological process where a child inserts a sound or a syllable in between two sounds in a word. This is a common occurrence in young children who are still developing their language skills. For example, a child might say "blue" instead of "blue" or "su-pas-ghetti" instead of "spaghetti." The child is inserting an extra sound in the middle of the word to make it easier to pronounce. Epenthesis is a normal part of language development, and most children grow out of it by the age of four or five. However, if a child continues to use epenthesis beyond this age or if it is accompanied by other speech difficulties, it may be a sign of a speech or language disorder and may require professional intervention. Metathesis is a phonological process where a child switches the order of two sounds in a word. This is a common occurrence in young children who are still developing their language skills. For example, a child might say "amina" instead of "animal." The child is switching the positions of the "n" and "m" sounds in the word. Metathesis is a normal part of language development, and most children grow out of it by the age of four or five. However, if a child continues to use metathesis beyond this age or if it is accompanied by other speech difficulties, it may be a sign of a speech or phonological disorder. If a child continues to exhibit phonological processes beyond the expected age range, or if the child uses an excessive amount of phonological processes that hinder their speech intelligibility, it could be a sign of a phonological disorder. It can be challenging to cope with having a child whose speech is unintelligible to others, as this can lead to frustration for the child. Children with phonological disorders may exhibit tantrums, such as crying, screaming, sighing loudly, stomping, or throwing objects. They may display "aggressive" behaviors, such as biting, hitting, pulling, and shoving, often due to feeling misunderstood and unable to effectively communicate their wants and needs. These behaviors not only affect the child but also the parent or caregiver. However, parents can take solace in knowing that most children will exhibit improved speech intelligibility over time, and speech-language pathologists and their teams are available to help. Consistent speech therapy can be highly effective in targeting phonological processes, leading to faster improvements in speech intelligibility. If you fear that your child has not mastered phonological processes and is still using them, or that there may be some phonological disorders, please get help. For example, you can join our childhood literacy programs. These programs focus on childhood development of essential skills through group learning, therapy, and so on. Consult with a speech-language pathologist (SLP). An SLP can assess the child's speech and provide a diagnosis of the phonological disorder. They can also develop a personalized treatment plan to target specific areas of difficulty. You can also sign your child up for consistent speech therapy with an SLP. Regular speech therapy sessions can help children improve their speech sounds and intelligibility. The SLP will work with the child to practice correct sound production and may use activities and games to make the therapy sessions engaging and fun. As the child progresses, encouraging and praising their efforts can boost their confidence and motivation to continue working on their speech. Parents and caregivers can provide positive feedback for correct sounds and offer gentle correction for incorrect sounds. It is always joyful to watch children develop through developmental milestones and achieve new skills. While phonological processes are cute when your child is very young, take action when they are not outgrowing them. Phonological Processes: Definition, Examples, and Therapy All children use some phonological processes when they are younger. This is a very normal part of learning to speak. Here are some examples of typical phonological processes: Cluster Reduction (pot for spot) Reduplication (wawa for water) Weak Syllable Deletion (nana for banana) Final Consonant Deletion (ca for cat) Velar Fronting (/t/ for /k/ and /d/ for /g/) Stopping (replacing long sounds like /s/ with short sounds like /t/) Assimilation (changing consonants in a word to be more like other consonants in the word, like /g/ for /d/) Types of Phonological Processes by Age: We expect children to use certain phonological processes at certain ages. When children do not grow out of using phonological processes or are using them longer than is expected, they are considered to be a problem. Most children stop using these processes without any teaching or coaching. However, some children require speech therapy to learn not to use them. Here are some ages for when common phonological processes should stop being used: As I mentioned before, all children use some phonological processes in their speech. These are considered natural or normal phonological processes. However, in children with phonological disorders, we sometimes see other phonological processes being used that are atypical or abnormal. We call these atypical phonological processes or idiosyncratic phonological processes. These are different from the ones we see in typically-developing children. These can be red flags that there may be something wrong with the child's phonological system. Children who use these processes should be checked out by a speech-language pathologist. Examples of Atypical Phonological Processes: Initial Consonant Deletion (og for dog) Backing (moving front sounds like /t/ and /d/ to the back of the mouth like /k/ and /g/) Glottal Replacement (ha er for hammer) Fricatives Replacing Stops (sop for top) Stopping of glides (darn for yarn) Vowel Error Patterns How to Treat Phonological Disorders: If a child is having trouble with phonological processes in that he is using normal ones beyond when he should or is using atypical processes, we consider that child to have a phonological disorder. To treat this problem, our job is to re-train the child's brain to overwrite the rule that he/she has created. This is typically done in speech therapy sessions with a licensed speech-language pathologist. Here are the steps for fixing this: Listening: First, the child must hear the difference between his errors and the correct production. Speaking Words: Next, the child must say the words without using the phonological process. Structuring Sentences: Once the child can say the specific words, he must use those words in sentences. Structured Conversation: Now, the child must practice not using the process during longer speaking situations, such as answering a question or telling about a past event. Carry-Over: Only once you've done all of that can you work on helping the child remember to not use the process in every-day speech. If a child speaks with a lot of different phonological processes, or if they are very hard to understand, The Cycles Approach to Phonology is a great therapy method that will provide some structure to your sessions. Hide the Penny Game for Phonological Therapy: Check out this video with a great game you can play using minimal pairs. In this game, you will hide a penny under one of the pictures and help the child hear or speak the difference between the two words (targeting the phonological error that they are exhibiting). Click play below to watch! You can download your own guide to teaching a child a whole class of sounds. Reference: Paul, R. (2007). Language disorders from infancy through adolescence: Assessment & intervention. St. Louis: Mosby. Check out our additional resources for treating phonological processes: Podcast: Play in new window | Download | EmbedSubscribe: Apple Podcasts | RSS This site uses Akismet to reduce spam. Learn how your comment data is processed. Speech pathologists working with younger children will likely treat phonological disorders. Part of the process of correcting phonology errors involves understanding the different phonological processes, or speech pattern simplifications, that children may use. This article explains the most common phonological processes and provides examples for SLPs. Phonological errors are patterns of sound errors that are rule-based and impact more than one sound. A phonological disorder falls under the umbrella of a speech sound disorder. A child who has a phonological disorder may consistently exhibit phonological processes in his speech, such as fronting, cluster reduction, stopping, or final consonant deletion. It is within the scope of a speech-language pathologist to diagnose a phonological disorder. Often, clinical judgment, along with an assessment, is used. Assessments may be informal or formal. Many standardized assessments are able to provide severity rankings, as well as the overall percentage that a phonological process is exhibited by a student. This can be very useful for goal setting. Assessments I have personally used include the CAAP-2 (Clinical Assessment of Articulation and Phonology- Second Edition) and the HAPP-3 (Hodson Assessment of Phonological Patterns- Third Edition). Phonological processes that are observed 40% of the time or higher are considered to be active phonological processes. In my professional opinion, any process that is observed at least 30% of the time or higher may be impacting intelligibility. Phonological processes can be categorized as: syllable structure processes, substitution processes, assimilation processes, syllable structure processes, and changes made to the syllable structure. Cluster reduction (i.e. mile for smile), reduplication (i.e. wawa for water), weak syllable deletion (nana for banana), and final consonant deletion (pih for pig) fall under the umbrella of syllable structure processes. Substitution processes involve changes, such as one sound class changing to another sound class. Changes may occur in place of articulation, manner of articulation, or voicing. Examples include fronting (tall for call), affrication (chew for shoe), and voicing (i.e. doo for two). Assimilatory processes occur when a sound in a word changes to become more like a neighboring sound. Velar assimilation (guck for duck), labial assimilation (fwing for swing), nasal assimilation (i.e. nunny for bunny), and liquid assimilation (i.e. lelo for yellow) are examples of this. Consonant cluster reduction occurs when a consonant is deleted from a cluster. Often, cluster reduction occurs on l blends, s blends, and r blends. Examples might include pane for plane or mile for smile. \*When s, l, or r are missing from the cluster, it is called marked cluster reduction. Click here for cluster reduction minimal pairs. Reduplication occurs when the first syllable of a word is repeated. An example of this might be saying wawa for water. Typically, this process is extinguished by the age of 2 1/2. Syllable deletion occurs when a syllable is omitted. Weak syllable deletion specifically involves the omission of an unstressed syllable. An example could include saying nana for banana. SLPs will often target marking all syllables in multisyllabic words. Here is an activity that targets syllable deletion for use in speech therapy. Multisyllabic words smash mat for speech therapy Final consonant deletion occurs when the final consonant of a word is omitted. Examples of this would be saying pih for pig or kay for cake. It is my professional opinion that voiceless final consonants are a great place to start when targeting final consonant deletion, or FCD. Target final consonant deletion using this activity. This process occurs when one consonant sound in a cluster is substituted for another sound. Examples might include stwing for string or gween for green. These examples could also be classified as gliding. Velar fronting occurs when a sound made in the back, a velar sound (such as k, g, or ŋ) is replaced with a sound made in the front of the mouth, like an alveolar sound. Examples might include doe for go or tall for call. Try using these fronting minimal pairs in speech therapy. Fronting Activity for Speech Therapy Palatal fronting occurs when a sound made in the back (a palatal sound, sh) occurs in the front (an alveolar sound, like t). The tongue should be touching the roof of the mouth, or the palatal area, to make the sh sound, but instead touches near the alveolar ridge. Examples might include saying so for show or fis for fish. Labialization occurs when a labial sound (including bilabials, such as p, b, m, or labio-dental sounds, such as f or v) replaces a non-labial sound. An example of this would be saying fun for thumb. Alveolarization occurs when sounds that are not alveolar sounds become alveolar sounds. Alveolar sounds include t, d, s, z, n, and l. They may be substituted with interdental sounds (voiced th, voiceless th) and labiodental sounds (which include f and v). An example of alveolarization would include saying some for thumb. The phonological process of stopping occurs when a stop sound (such as p, b, t, d, k, or g) replaces a fricative (f, v, th, s, z, sh, zh) or an affricate (ch, dj). Examples might include saying Pete for feet or fit for fish. Here is an activity that targets the phonological process of stopping. Gliding occurs when liquid sounds (l, r) are substituted by glides (w, j). An example would be saying wed for red. Try out this free gliding activity in your speech therapy session. Vocalization (also known as vowelization) is a phonological process that involves the substitution of a vowel for a syllabic liquid or vocalic er. Examples would include cah for car or laduh for ladder. Check out more vocalic r tips. Affrication is a phonological process that involves the replacement of a fricative sound (such as sh) with an affricate (such as ch or dj). An example of affrication would be chew for shoe. Deaffrication is a phonological process that involves changing an affricate sound (ch or dj) to a stop (such as p, b, t, d) or a fricative (i.e. s, z, sh). An example might be shop for chop or tear for chair. The phonological process of voicing occurs when a voiceless sound is used in place of a voiced sound. An example of voicing would be pig for big. Try this voicing activity with your speech therapy students, or use these voicing and devoicing phonology play dough smash mats. Voicing / Devoicing Activity for Speech Therapy The phonological process of devoicing occurs when a voiceless sound is used in place of a voiced sound. An example of devoicing would be pig for big. These devoicing minimal pairs are very effective for targeting this process. The phonological process of denasalization occurs when a nasal sound (m, n, ŋ) is replaced with a stop (p, b, t, d, k, g). For example, the nasal /m/ may be replaced by /p/ or /b/. An example might include boo for moo. The phonological process of labial assimilation occurs when a labial sound is changed into a non-labial sound. The non-labial sound is a neighboring sound in the word, and is influenced by the labial sound. Labial sounds may include bilabials (p,b,m) and labiodentals (f,v). An example would be fwim for swim. Velar assimilation is a phonological process that occurs when a nonvelar sound is influenced, and changed, by a neighboring velar sound. Velar sounds include k, g, and ŋg. An example of velar assimilation might be saying kack for tack. The velar /k/ influences the lingua- alveolar sound /l/ in this example. Nasal assimilation is a phonological process that occurs when a non-nasal sound is influenced, and changed, by a neighboring nasal sound (m, n, ŋ). For example, saying money for funny or bunny. Liquid assimilation is a phonological process that occurs when a nonliquid sound is influenced, and changed, by a neighboring liquid sound. Liquid sounds include l and r. An example of liquid assimilation might be saying lellow for yellow. Bauman-Waengler, J. A. (2012). Articulatory and phonological impairments. New York, NY: Pearson Higher Education. Pena-Brooks, Adriana (2007). Articulation and Phonological Disorders: Assessment and Treatment Manual. Austin, Texas: Pro-Ed Inc. Selected Phonological Processes. Selected Phonological Processes, American Speech-Language-Hearing Association. , Originally posted May 3, 2013. Updated September 18, 2024. Weve talked a lot about helping kids with articulation disorders here on Mommy Speech Therapy. Ive shared my Articulation Screener to help you identify the sounds kids are saying in error as well as an Articulation Goal Tracker to help select the sounds that need to be targeted and keep track of progress. But what if your child has so many sound errors you dont know where to start, or they are so difficult to understand you dont know how to help them? If this is the case they may have more than an articulation delay, they may have a phonological disorder characterized by the presence of phonological processes beyond what would be expected. What are Phonological Processes? Phonological processes are patterns of sound errors that typically developing children use to simplify speech as they are learning to talk. They do this because they dont have the ability to coordinate the lips, tongue, teeth, palate and jaw for clear speech. As a result they simplify complex words in predictable ways until they develop the coordination required to articulate clearly. For example, they may reduce consonant clusters to a single consonant like, pane for plane or delete the weak syllable in a word saying, nana for banana. There are many different patterns of simplifications or phonological processes. You can download my FREE Phonological Processes Chart HERE or click the link below. This chart lists common phonological processes and an approximate age at which children should no longer be using them. What is a phonological disorder? These processes are considered normal unless they persist beyond the age when most typically developing children have stopped using them. For example if your 4 year old still uses the phonological process of reduplication (saying, wawa for water) that would be considered delayed since most children stop using that process by the time they turn 3. A phonological delay may also be considered if the processes the child is using are different than what would be expected. For example, if your child leaves all of the beginning sounds off of his/her words it would be considered a delay since initial consonant deletion is not common in typical development. The excessive use of phonological processes can also indicate a phonological disorder because when multiple phonological processes are exhibited together it usually increases the child's unintelligibility making them really difficult to understand. As a result, if you have a highly unintelligible child theyre likely to have a phonological delay, and their phonological skills should be assessed when considering a treatment plan. If you're uncertain as to how intelligible your child should be based on their age, the standard guideline is by 2 years old a child should be 50% intelligible to an unfamiliar listener. By 3 years old they should be 75% intelligible to an unfamiliar listener and by 4-5 years old they should be close to 100% intelligible to an unfamiliar listener even if a few articulation errors are still present in their speech. Refer to the speech sound intelligibility chart HERE. Articulation or Phonological Disorder? Since phonological disorders and articulation disorders are both speech sound disorders it can sometimes be tricky to know which speech sound disorder is present. Here are a few tips on how to tell the difference. A speech sound disorder is considered an articulation disorder when: Speech sound errors persist beyond what is developmentally appropriate. Refer to the Speech Sound Development Chart for details. A child is mild to moderately unintelligible Children with an articulation disorder typically respond well to a traditional articulation therapy approach where one sound is targeted at a time. For a guide on traditional articulation therapy refer to The Process of Articulation Therapy. As described above, a speech sound disorder is considered a phonological disorder when: Phonological processes persist beyond the typical age of development. You can refer to the Phonological Processes Chart for details. Phonological processes are used that are not seen in typical development A child is highly unintelligible due to the excessive use of phonological processes Treatment for Phonological Disorders: Remediation for kids with phonological disorders usually involves targeting the phonological processes in error as determined by the speech language pathologist. Targeting the phonological processes, as opposed to targeting each error sound by sound as you would in a traditional articulation approach, usually improves speech intelligibility at a faster rate for kids with phonological disorders. If you suspect your child may have a phonological disorder or you are concerned about your child's speech intelligibility you should contact a speech language pathologist for an evaluation. As always, I wish your kids the very best in becoming successful communicators and with your help and support I know they can! Ever wondered why young children sometimes say rabbit instead of rabbit? This adorable mispronunciation is an example of a phonological process. Phonological processes are patterns of sound errors that typically developing children use to simplify speech as they learn to talk. You might not realize it, but these processes are a natural part of language development. They help children gradually master the complex sounds of their native language. Understanding these processes can give you valuable insights into speech development and help identify when a child might need a little extra support. Phonological Processes Simplify Speech: Young children often use phonological processes as a natural part of language development to simplify complex sounds, exemplified by mispronunciations like rabbit for rabbit. Types of Phonological Processes: Common types include substitution (e.g., wed for red), assimilation (e.g., gog for dog), and syllable structure processes (e.g., nana for banana). Critical for Language Development: These processes support early speech and language acquisition by making communication manageable for young children despite their immature articulation. Monitoring Speech Development: Identifying and tracking phonological processes helps in assessing typical speech development and detecting potential speech disorders early. Intervention Strategies: Speech-language pathologists use targeted techniques like minimal pair therapy and the cycles approach, while parents and educators can reinforce learning with apps, picture cards, and interactive activities. Phonological processes are essential in early language acquisition. They simplify speech for young children as they learn to articulate complex sounds. Phonological processes represent sound patterns that children use to simplify speech. Children, especially those between 2 and 6, often employ these processes unconsciously. For example, they might say wawa instead of water. These processes streamline articulation by altering, omitting, or simplifying sounds. Phonological processes can be categorized into several distinct types: Substitution Processes: Replace one class of sounds for another. For example, red becomes wed (gliding). Assimilation Processes: Change a sound to be more like a neighboring sound. For instance, dog becomes gog. Syllable Structure Processes: Simplify the structure of a syllable. Examples include reducing banana to nana (unstressed syllable deletion). These processes generally diminish as children's speech matures, usually disappearing by age 7. Monitoring these patterns helps ensure typical speech development and identifies potential speech disorders early. Phonological processes play a crucial role in children's language development. They help simplify complex words, making speech more manageable for young speakers. Phonological processes are essential for speech development because they allow children to communicate effectively despite having immature articulatory skills. For instance, substitution involves replacing difficult sounds with easier ones, like saying wed for red. These patterns provide insight into a child's phonological system and can indicate whether their speech development is on track. Phonological processes facilitate language acquisition by helping children learn the sound structures of their native language. Assimilations, such as saying gog for dog, show how children internalize and reproduce common sound patterns. Understanding these processes helps caregivers and professionals create targeted interventions if necessary, ensuring children develop clear, understandable speech as they grow. Recognizing phonological processes in children helps in assessing speech development. Early identification of these patterns ensures timely interventions if required. In early childhood, phonological processes often include: Substitution Processes: This involves replacing one sound with another, such as saying rabbit instead of rabbit. Common substitutions include stopping (replacing sounds like /s/ and /t/ with /l/ and /p/) and fronting (replacing sounds like /k/ and /g/ with /t/ and /d/). Assimilation Processes: The influence of one sound on another within a word leads to sound changes. For example, gog for dog due to consonant harmony is a common assimilation process. Syllable Structure Processes: Simplifying complex syllable structures by omitting or altering sounds occurs frequently. Examples include cluster reduction (saying pane for plane) and final consonant deletion (saying ca for cat). These processes generally decrease as children's speech abilities develop and mature. Seek professional help if phonological processes persist beyond typical age ranges. For instance, if substitution patterns are still notable after age 4, or syllable structure processes are present past age 3, consult a speech-language pathologist. Signs that warrant evaluation include difficulty being understood by peers or adults and significant frustration during communication. Early intervention can address these issues effectively and promote clear, understandable speech development. Addressing phonological processes early supports clear communication skills. Here are strategies for intervention. Speech-language pathologists (SLPs) implement various techniques to correct phonological processes. Minimal pair therapy contrasts words differing by one sound in the target position to raise awareness of sound differences. Cycles approach introduces sounds in a cyclic manner, focusing on one phonological process at a time. Multiple oppositions therapy targets multiple speech sound errors simultaneously, treating several phonological errors within a single session. Core vocabulary approach focuses on consistency rather than accuracy, selecting a set list of words pivotal to the child's daily communication. Parents and educators play a key role in reinforcing phonological interventions. Apps like Articulation Station and Speech Therapy Centre utilize engaging interfaces to practice speech sounds. Picture cards aid in visual association, helping children link images with specific sounds. Board games designed for speech therapy integrate fun with learning, making practice sessions interactive and engaging. Reading books with repetitive and rhyming phrases bolsters auditory discrimination and phonemic awareness. Encouraging children to narrate daily activities strengthens their expressive language skills and reinforces learned sounds. Understanding phonological processes is key to supporting children's speech development. By recognizing these patterns early, you can help identify potential speech disorders and ensure timely intervention. Utilizing strategies like minimal pair therapy and tools such as apps and picture cards can significantly aid in this process. Early intervention not only fosters clear communication but also boosts your child's confidence and social skills. Your proactive approach can make a lasting impact on their ability to articulate and express themselves effectively. Phonological processes are patterns of sound errors that young children use to simplify speech as they learn to talk. These include substituting one sound for another, assimilating sounds, and altering syllable structures. Monitoring phonological processes is crucial because it allows for the early detection of potential speech disorders, enabling timely intervention to promote clearer communication skills. Common phonological processes include sound substitutions (e.g., wabbit for rabbit), sound assimilations (e.g., goggie for doggie), and changes in syllable structures (e.g., nana for banana). Speech-language pathologists use various techniques such as minimal pair therapy, the cycles approach, and multiple oppositions therapy to address phonological processes in children. Parents and educators can support speech interventions by using resources like apps, picture cards, board games, and reading repetitive phrase books to practice and reinforce speech sounds with children. Early intervention is vital for improving children's communication skills, as it helps address speech issues before they become more ingrained and harder to correct as the child grows older.

When children learn to speak, they need to use a wide range of sounds. However, due to the complexity of speech sounds and the cognitive demands of language learning, children may experience difficulties producing and perceiving certain sounds. So, children pronounce words the best way they can. That is why children pronounce words like rain as wain or plane as pane. While this may be cute, it is a normal aspect of language learning that is worth examining. Children do this because they are learning to synchronize the movements of their tongue, lips, jaw, teeth, and palate in order to produce speech sounds, and all children make errors in their speech sounds during this process. Phonological processes are patterns of sound substitutions that children employ to simplify their speech. Phonological processes are the predictable patterns of speech errors used by typically developing children to simplify their speech as they learn to talk. While young children hear the speech sounds of the language being used around them but are unable to produce all of them yet. This is because they do not possess the ability to coordinate the tongue, lips, teeth, palate, and jaw for clear speech. Therefore, they simplify complex words in predictable ways until they develop the coordination necessary to articulate clearly. As a result, their speech does not resemble that of adults. It would be overwhelming for a young child's brain to attempt to speak with all of the sounds an adult can produce. To make speaking easier, the child's brain develops rules, known as phonological processes, to simplify speech sounds and make words easier to say. For instance, producing sounds at the back of the mouth, such as /k/ and /g/, can be challenging for young children. Many children simplify this by implementing a rule (the phonological process) that says that for a sound produced at the back of the mouth, change it to a sound produced at the front of the mouth (where it's easier). As a result, /k/ becomes /t/, and /g/ becomes /d/. This explains why it's typical for young children to say "titty tat" instead of "kitty cat." It's important to note that these rules are beyond the child's control. They do not choose to omit consonants at the end of words or alter sounds. Their brain does it automatically, and they may not even be aware that they're doing it. At certain ages, we anticipate that children will use phonological processes. Its only a problem when children don't attempt to outgrow the use of these processes beyond the typical period. While most children naturally outgrow this stage, others may require speech therapy to overcome it. All children use some types of phonological processes. Let us explore the types so that you can understand how they work. Here are some types of typical phonological processes: Assimilation is a phonological process in which a sound becomes more similar to a neighboring sound in a word, due to the influence of that neighboring sound. For example, if a child says "gog" instead of "dog", this is an example of assimilation, as the /g/ sound becomes more like the following /d/ sound in the word. Another example is when a child says "baba" instead of "bottle", where the /t/ sound is replaced by the /b/ sound from the previous syllable. This is known as regressive assimilation. Assimilation is a common phonological process that occurs when one sound in a word is influenced by another sound and becomes more similar to it. Here are some examples of assimilation in children: Nasal Assimilation: This occurs when a non-nasal consonant becomes nasal due to the influence of a neighboring nasal consonant. For example, the word "tent" may be pronounced as "tɛnt" because of the influence of the nasal "n" sound. Labial Assimilation: This occurs when a non-labial consonant becomes a labial consonant due to the influence of a neighboring labial consonant. For example, the word "cup" may be pronounced as "pʊp" because of the influence of the labial "p" sound. Velar Assimilation: This occurs when a non-velar consonant becomes a velar consonant due to the influence of a neighboring velar consonant. For example, the word "dog" may be pronounced as "gog" because of the influence of the velar "g" sound. Voicing Assimilation: This occurs when a voiceless consonant becomes voiced due to the influence of a neighboring voiced consonant. For example, the word "cat" may be pronounced as "gat" because of the influence of the voiced "g" sound. Devoicing Assimilation: This occurs when a voiced consonant becomes voiceless due to the influence of a neighboring voiceless consonant. For example, the word "bed" may be pronounced as "pet" because of the influence of the voiceless "p" sound. Dissimilation is a phonological process in which a child changes a sound in a word to make it more distinct from another sound in the same word. The goal of dissimilation is to make the word easier to say or to avoid a difficult sound sequence. For example, a child might pronounce the word "yellow" as "yewlow" to avoid the difficult sequence of two "l" sounds. Similarly, the child might pronounce the word "spaghetti" as "pasketti" to avoid the difficult sequence of two "s" sounds. Dissimilation is a common phonological process in young children's speech development, and it typically disappears as their speech becomes more mature. Parents and caregivers can help children overcome dissimilation by modeling correct pronunciation and providing gentle correction when needed. There are several types of dissimilation that can occur in children's speech. Here are some examples: Regressive dissimilation: In this type of dissimilation, a sound that comes later in the word influences the sound that comes before it. For example, a child might pronounce the word "apple" as "apɛp" because the "l" sound is influenced by the "p" sound that comes after it. Progressive dissimilation: In this type of dissimilation, a sound that comes earlier in the word influences the sound that comes after it. For example, a child might pronounce the word "banana" as "banano" because the second "n" sound is influenced by the first "n" sound. Total dissimilation: In this type of dissimilation, a sound is completely changed or eliminated from the word. For example, a child might pronounce the word "spoon" as "poon" because the "s" sound is eliminated. Partial dissimilation: In this type of dissimilation, a sound is changed only slightly from its original pronunciation. For example, a child might pronounce the word "water" as "wawa" because the "t" sound is changed to a "w" sound. These types of dissimilation can occur in combination with other phonological processes, such as deletion, substitution, and addition, as children develop their speech skills. Deletion is a common phonological process in which a child omits or leaves out a sound or syllable in a word. This process is a natural part of children's speech development as they learn to produce more complex sounds and syllables. There are several types of deletion that can occur in children's speech: Final consonant deletion: In this type of deletion, a child leaves off the final consonant in a word. For example, the word "cat" may be pronounced as "ca." Cluster reduction: In this type of deletion, a child leaves off one or more consonants in a consonant cluster. For example, the word "stop" may be pronounced as "top." Cluster reduction is a phonological process in which a child simplifies a group of consonant sounds by turning them into a single sound or a more manageable combination of sounds, as seen in examples like "poon" for "spoon" and "tuck" for "truck." Typically, this process should resolve by age 4 for words without /s/ and by age 5 for words with /s/. Syllable deletion: In this type of deletion, a child leaves off an entire syllable in a word. Weak Syllable Deletion is a phonological process in which a child deletes an unstressed syllable in a word, such as saying "nana" for "banana" or "puter" for "computer." Typically, this process resolves by the age of 4. Unstressed syllable deletion: In this type of deletion, a child leaves off an unstressed syllable in a word. For example, the word "potato" may be pronounced as "tato." It's important to note that while deletion is a normal part of children's speech development, it should decrease as a child's speech becomes more mature. If a child is still exhibiting significant deletion patterns past a certain age (typically around 4-5 years old), it may be a sign of a speech or language disorder and professional intervention may be needed. Epenthesis is a phonological process where a child inserts a sound or a syllable in between two sounds in a word. This is a common occurrence in young children who are still developing their language skills. For example, a child might say "blue" instead of "blue" or "su-pas-ghetti" instead of "spaghetti." The child is inserting an extra sound in the middle of the word to make it easier to pronounce. Epenthesis is a normal part of language development, and most children grow out of it by the age of four or five. However, if a child continues to use epenthesis beyond this age or if it is accompanied by other speech difficulties, it may be a sign of a speech or language disorder and may require professional intervention. Metathesis is a phonological process where a child switches the order of two sounds in a word. This is a common occurrence in young children who are still developing their language skills. For example, a child might say "amina" instead of "animal." The child is switching the positions of the "n" and "m" sounds in the word. Metathesis is a normal part of language development, and most children grow out of it by the age of four or five. However, if a child continues to use metathesis beyond this age or if it is accompanied by other speech difficulties, it may be a sign of a speech or phonological disorder. If a child continues to exhibit phonological processes beyond the expected age range, or if the child uses an excessive amount of phonological processes that hinder their speech intelligibility, it could be a sign of a phonological disorder. It can be challenging to cope with having a child whose speech is unintelligible to others, as this can lead to frustration for the child. Children with phonological disorders may exhibit tantrums, such as crying, screaming, sighing loudly, stomping, or throwing objects. They may display "aggressive" behaviors, such as biting, hitting, pulling, and shoving, often due to feeling misunderstood and unable to effectively communicate their wants and needs. These behaviors not only affect the child but also the parent or caregiver. However, parents can take solace in knowing that most children will exhibit improved speech intelligibility over time, and speech-language pathologists and their teams are available to help. Consistent speech therapy can be highly effective in targeting phonological processes, leading to faster improvements in speech intelligibility. If you fear that your child has not mastered phonological processes and is still using them, or that there may be some phonological disorders, please get help. For example, you can join our childhood literacy programs. These programs focus on childhood development of essential skills through group learning, therapy, and so on. Consult with a speech-language pathologist (SLP). An SLP can assess the child's speech and provide a diagnosis of the phonological disorder. They can also develop a personalized treatment plan to target specific areas of difficulty. You can also sign your child up for consistent speech therapy with an SLP. Regular speech therapy sessions can help children improve their speech sounds and intelligibility. The SLP will work with the child to practice correct sound production and may use activities and games to make the therapy sessions engaging and fun. As the child progresses, encouraging and praising their efforts can boost their confidence and motivation to continue working on their speech. Parents and caregivers can provide positive feedback for correct sounds and offer gentle correction for incorrect sounds. It is always joyful to watch children develop through developmental milestones and achieve new skills. While phonological processes are cute when your child is very young, take action when they are not outgrowing them. Phonological Processes: Definition, Examples, and Therapy All children use some phonological processes when they are younger. This is a very normal part of learning to speak. Here are some examples of typical phonological processes: Cluster Reduction (pot for spot) Reduplication (wawa for water) Weak Syllable Deletion (nana for banana) Final Consonant Deletion (ca for cat) Velar Fronting (/t/ for /k/ and /d/ for /g/) Stopping (replacing long sounds like /s/ with short sounds like /t/) Assimilation (changing consonants in a word to be more like other consonants in the word, like /g/ for /d/) Types of Phonological Processes by Age: We expect children to use certain phonological processes at certain ages. When children do not grow out of using phonological processes or are using them longer than is expected, they are considered to be a problem. Most children stop using these processes without any teaching or coaching. However, some children require speech therapy to learn not to use them. Here are some ages for when common phonological processes should stop being used: As I mentioned before, all children use some phonological processes in their speech. These are considered natural or normal phonological processes. However, in children with phonological disorders, we sometimes see other phonological processes being used that are atypical or abnormal. We call these atypical phonological processes or idiosyncratic phonological processes. These are different from the ones we see in typically-developing children. These can be red flags that there may be something wrong with the child's phonological system. Children who use these processes should be checked out by a speech-language pathologist. Examples of Atypical Phonological Processes: Initial Consonant Deletion (og for dog) Backing (moving front sounds like /t/ and /d/ to the back of the mouth like /k/ and /g/) Glottal Replacement (ha er for hammer) Fricatives Replacing Stops (sop for top) Stopping of glides (darn for yarn) Vowel Error Patterns How to Treat Phonological Disorders: If a child is having trouble with phonological processes in that he is using normal ones beyond when he should or is using atypical processes, we consider that child to have a phonological disorder. To treat this problem, our job is to re-train the child's brain to overwrite the rule that he/she has created. This is typically done in speech therapy sessions with a licensed speech-language pathologist. Here are the steps for fixing this: Listening: First, the child must hear the difference between his errors and the correct production. Speaking Words: Next, the child must say the words without using the phonological process. Structuring Sentences: Once the child can say the specific words, he must use those words in sentences. Structured Conversation: Now, the child must practice not using the process during longer speaking situations, such as answering a question or telling about a past event. Carry-Over: Only once you've done all of that can you work on helping the child remember to not use the process in every-day speech. If a child speaks with a lot of different phonological processes, or if they are very hard to understand, The Cycles Approach to Phonology is a great therapy method that will provide some structure to your sessions. Hide the Penny Game for Phonological Therapy: Check out this video with a great game you can play using minimal pairs. In this game, you will hide a penny under one of the pictures and help the child hear or speak the difference between the two words (targeting the phonological error that they are exhibiting). Click play below to watch! You can download your own guide to teaching a child a whole class of sounds. Reference: Paul, R. (2007). Language disorders from infancy through adolescence: Assessment & intervention. St. Louis: Mosby. Check out our additional resources for treating phonological processes: Podcast: Play in new window | Download | EmbedSubscribe: Apple Podcasts | RSS This site uses Akismet to reduce spam. Learn how your comment data is processed. Speech pathologists working with younger children will likely treat phonological disorders. Part of the process of correcting phonology errors involves understanding the different phonological processes, or speech pattern simplifications, that children may use. This article explains the most common phonological processes and provides examples for SLPs. Phonological errors are patterns of sound errors that are rule-based and impact more than one sound. A phonological disorder falls under the umbrella of a speech sound disorder. A child who has a phonological disorder may consistently exhibit phonological processes in his speech, such as fronting, cluster reduction, stopping, or final consonant deletion. It is within the scope of a speech-language pathologist to diagnose a phonological disorder. Often, clinical judgment, along with an assessment, is used. Assessments may be informal or formal. Many standardized assessments are able to provide severity rankings, as well as the overall percentage that a phonological process is exhibited by a student. This can be very useful for goal setting. Assessments I have personally used include the CAAP-2 (Clinical Assessment of Articulation and Phonology- Second Edition) and the HAPP-3 (Hodson Assessment of Phonological Patterns- Third Edition). Phonological processes that are observed 40% of the time or higher are considered to be active phonological processes. In my professional opinion, any process that is observed at least 30% of the time or higher may be impacting intelligibility. Phonological processes can be categorized as: syllable structure processes, substitution processes, assimilation processes, syllable structure processes, and changes made to the syllable structure. Cluster reduction (i.e. mile for smile), reduplication (i.e. wawa for water), weak syllable deletion (nana for banana), and final consonant deletion (pih for pig) fall under the umbrella of syllable structure processes. Substitution processes involve changes, such as one sound class changing to another sound class. Changes may occur in place of articulation, manner of articulation, or voicing. Examples include fronting (tall for call), affrication (chew for shoe), and voicing (i.e. doo for two). Assimilatory processes occur when a sound in a word changes to become more like a neighboring sound. Velar assimilation (guck for duck), labial assimilation (fwing for swing), nasal assimilation (i.e. nunny for bunny), and liquid assimilation (i.e. lelo for yellow) are examples of this. Consonant cluster reduction occurs when a consonant is deleted from a cluster. Often, cluster reduction occurs on l blends, s blends, and r blends. Examples might include pane for plane or mile for smile. \*When s, l, or r are missing from the cluster, it is called marked cluster reduction. Click here for cluster reduction minimal pairs. Reduplication occurs when the first syllable of a word is repeated. An example of this might be saying wawa for water. Typically, this process is extinguished by the age of 2 1/2. Syllable deletion occurs when a syllable is omitted. Weak syllable deletion specifically involves the omission of an unstressed syllable. An example could include saying nana for banana. SLPs will often target marking all syllables in multisyllabic words. Here is an activity that targets syllable deletion for use in speech therapy. Multisyllabic words smash mat for speech therapy Final consonant deletion occurs when the final consonant of a word is omitted. Examples of this would be saying pih for pig or kay for cake. It is my professional opinion that voiceless final consonants are a great place to start when targeting final consonant deletion, or FCD. Target final consonant deletion using this activity. This process occurs when one consonant sound in a cluster is substituted for another sound. Examples might include stwing for string or gween for green. These examples could also be classified as gliding. Velar fronting occurs when a sound made in the back, a velar sound (such as k, g, or ŋ) is replaced with a sound made in the front of the mouth, like an alveolar sound. Examples might include doe for go or tall for call. Try using these fronting minimal pairs in speech therapy. Fronting Activity for Speech Therapy Palatal fronting occurs when a sound made in the back (a palatal sound, sh) occurs in the front (an alveolar sound, like t). The tongue should be touching the roof of the mouth, or the palatal area, to make the sh sound, but instead touches near the alveolar ridge. Examples might include saying so for show or fis for fish. Labialization occurs when a labial sound (including bilabials, such as p, b, m, or labio-dental sounds, such as f or v) replaces a non-labial sound. An example of this would be saying fun for thumb. Alveolarization occurs when sounds that are not alveolar sounds become alveolar sounds. Al