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Practice in Child Phonological Disorders: Tackling some Common Clinical Problems

Tim Brackenbury
Bowling Green State University

Marc Fey
University of Kansas

Gregory Lof
MGH Institute of Health Professions

Benjamin Munson
University of Minnesota

A. Lynn Williams
East Tennessee State Univeristy, williamsl@etsu.edu

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Chicago, IL

- This document contains copies of the slides and handouts that were used in the panel discussion. They are in the order of their presentation.

Topic and Goals

- Child phonology
  - One of the most common communication disorders seen by school-based SLPs (ASHA, 2008)
  - Complex to evaluate and treat
    - many different options
    - individual clinicians may focus on all or a few
  - Phonology
    - used here in it's linguistic sense
    - a general term that includes all aspects of speech sound production / disorders

Goals

- Identify areas of child phonology that clinicians have difficulty with
- Help them in these areas

Overview

- Survey
  - 38 Clinical SLPs
    - Questions about phonological assessment and intervention
  - Data analyzed to reveal 3 major themes
- Panel Presentations
  - Each presenter assigned a topic area
    - Talk for 20 minutes on concepts within the topic
- Questions and ideas from you

Presenters

- Tim Brackenbury
  - Bowling Green State University
- Lynn Williams
  - East Tennessee State University
- Benjamin Munson
  - University of Minnesota
- Gregory Lof
  - MGH Institute of Health Professions
- Marc Fey
  - University of Kansas

Survey

- Developed to
  - Guide this presentation
  - Plan for a day-long workshop
  - Assist in teaching graduate students
- Methods
  - Emailed to child-based SLPs across Ohio
    - Listservs
    - Educational Service Centers

Survey

- Participants
  - 38 respondents
    - Emailed their answers
    - No demographic data
- Analysis
  - Responses copied into a spreadsheet
    - Divided by individual ideas
      - 157
    - Color coded by question

Survey

- Ideas printed and sorted into themes and sub-themes
  - Doctoral student and myself
  - Sub-themes checked by another doctoral student

Major Themes

I. Time
- Ways to do more with the limited amount of time available
  - Assessment
    - administration and scoring
    - child's attention
  - Intervention
    - availability
    - interruptions

Major Themes

II. Knowledge
- Need for increased information on a range of topics
  - Clarification of terms
  - Assessment tools
  - Selecting targets for therapy
  - Treatment for specific disorders and/or error types

Major Themes

III. Effectiveness and efficiency
- Getting the most information/change in the shortest amount of time
  - Selecting the best approach for each child's profile
  - Assessment procedures that directly lead to treatment
  - Improving parent/teacher involvement and carryover to other contexts

Panel Format

- Division of Labor
  - Each presenter will discuss a different topic
    - General ideas about assessment
    - Specific aspects of assessment
    - General ideas about intervention
    - Specific aspects of intervention
  - Mindfulness of the the themes
    - Time
    - Knowledge
    - Effectiveness and efficiency

Practice in Child Phonological Disorders: Assessment Issues

A. Lynn Williams
Center of Excellence in Early Childhood Learning and Development
East Tennessee State University
williamL@etsu.edu

2 Primary Assessment Issues

Time for Assessment
- Need for something that is effective and efficient
- Transcription
- Scoring

Test Selection
- Best for phonological analysis
- Appropriate for different populations
- Assessment tools for younger children

Purpose of Assessment

- Assessment provides information regarding child's development relevant to age peers and determines whether or not there is a delay/ disorder
  - 2 types of tests
    - Sound inventory tests
    - Pattern tests
      - Based on construct of phonological processes
  - Usefulness in planning intervention is limited

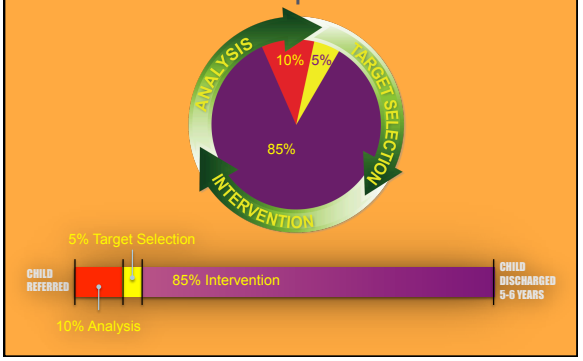
Phonological Analysis

- Can be completed on test data, probes, conversational samples
- Different analysis frameworks
  - Relational "error" analyses
    - SODA
    - Phonological process analysis
    - P-V-M analysis
  - Independent analyses
    - PPK (phonological knowledge relative to adult)
    - SPACS (phoneme collapses that map child:adult sound systems)
- Used to identify error patterns, phonological rules
  - Discovering the "order in the disorder"
  - Helpful in selecting intervention targets and planning therapy

Importance of Assessment and Analysis

Our intervention is only as effective as our analysis is thorough and accurate (Gierut, 1986)

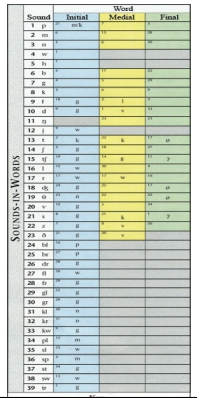
Traditional Perspective: Linear



Systemic Perspective: It's About Time

Effective and Efficient: Linking Assessment with Analysis

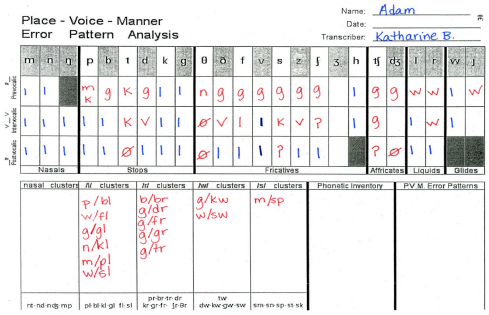
- How can we combine the need to complete standardized testing with importance of designing intervention?
  - And do it effectively and efficiently?
- Let's look at an example of Adam, age 4;6
  - GFTA
  - Relational Analysis (PVM)
  - Independent + Relational Analysis (SPACS)



What information do we have from GFTA results?

- We know that Adam has a speech disorder
  - Adam produced 44 errors out of 77 targets assessed (57% errors)
  - Fell at 5th percentile with a standard score of 68 and age equivalent of 2 years, 2 months
- But what do we know about:
  - Predominant error patterns?
  - How to structure intervention to get the greatest change?

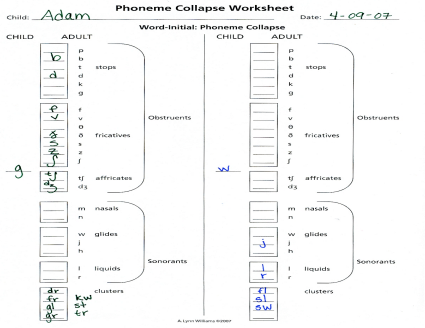
Adam's PVM Analysis



What information does the PVM analysis provide?

- Although Adam has a number of sound errors, his phonetic inventory is not that limited
  - Majority of his errors occur word-initially
- He has the most difficulty with the following classes of sounds or sound sequences:
  - Fricatives
  - Clusters
  - Affricates and liquids
  - Anterior stops
- He has a sound preference for /g/

SPACS



What information does SPACS provide?

- Although we see the sound preference for /g/, we can see how extensive this error substitute is
  - 1:17 phoneme collapse
- Further, we can see the "order in the disorder"
  - Adam's substitution of /g/ across stops, fricatives, and affricates [OBSTRUENTS] and clusters that contain a non-continuant consonant
  - Adam's error substitute of /w/ for target liquids and glides [SONORANTS] and clusters that contain continuants

Comments on Transcription and Scoring

- Obviously, more information is gained from whole-word transcription
  - But if you don't have the time, you can still gain a lot of information by transcribing the child's production for the tested phoneme
- +/- scoring system provides little useful information other than number of errors

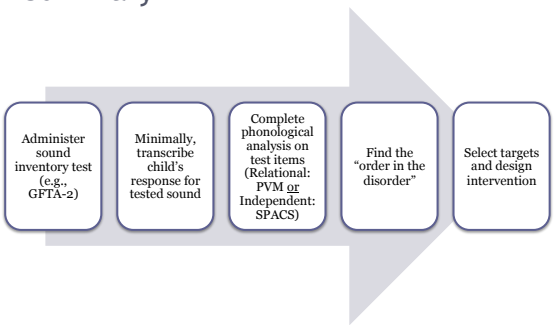
Time for Assessment

- It's important
  - To qualify children for services
  - Need to do it at least annually to update intervention plan
- Need to move away from debate of "more testing" versus "less testing"
  - Smarter testing

Test Selection

- Different tests for different purposes
  - Good "all purpose" test is a sound inventory test, such as the GFTA-2
    - Can complete phonological analysis on test responses
    - Easy to administer, commonly used
  - Can be used with different populations (e.g., deaf children) to obtain a phonetic inventory
    - Interpret with caution
    - Supplement with informal measures, samples, probes
- Assessment tools for earliest ages
  - Broad-based measures that sample different syllable structures and range of consonants (PVM) in initial and final positions
  - Use toy manipulatives rather than illustrations

Summary



Conclusion

Even with error transcriptions on standardized test, can complete phonological analysis to gain insight on child's sound system and design effective intervention program

Work SMARTER, not HARDER

Recommended Reading

AJSLP Clinical Forum (2002)

"Perspectives in the Assessment of Children's Speech"

- 6 different perspectives on assessing a child within 60-90 minutes
  - Natural Phonology (Tyler & Tolbert; Hodson, Scherz, & Strattman; Khan, 2002)
  - whole-language perspective (Hoffman & Norris)
  - "phonomotor" perspective (Bleile)
  - integrated perspective (Miccio)

Phonological Analysis Summary and Management Plan

(after Baker, 2004)

Client: _____ Date: _____

1. SUMMARY OF PHONOLOGICAL ANALYSIS

Position	Phoneme Collapses (3 predominant across positions)	Phonological Processes (3 predominant across positions)
WORD-INITIAL		
WORD-FINAL		
WORD-MEDIAL		

Vowel Errors? Yes / No

Patterns? ☐ Backing ☐ Fronting ☐ Centering ☐ Tensing

☐ Inconsistent errors

☐ Word inconsistency ☐ Phoneme Inconsistency

☐ Prosody errors

☐ Increased errors in multisyllabic words

☐ Increased errors in conversation than in single words

☐ Stimulable for sounds OUT of phonetic inventory?

List stimulable sounds: _____

List non-stimulable sounds: _____

ADDITIONAL INFORMATION:

Child's motivation: High / Low

Language impairment? Yes / No

Expressive language impairment? Yes / No

Receptive language impairment? Yes / No

Phonological Awareness Deficit / Reading Difficulty? Yes / No

2. CLINICAL IMPRESSIONS

Differential Diagnosis	Classification
Phonological Impairment (PI) ☐ PI only ☐ PI/LI ☐ expressive / receptive / both ☐ phonological awareness / literacy	☐ SD-DPI ☐ SD-OME ☐ Other _____
Articulation Impairment (AI) ☐ AI ☐ AI Residual Errors ☐ AI Compensatory Errors	☐ SE ☐ SD-gen Specify: _____ ☐ Other _____
Motor Speech Disorders (MSD) ☐ CAS ☐ Dysarthria	☐ SD-AOS ☐ SD-gen

3. TARGET SELECTION

Phonological Rule/Error Pattern (listed by priority order)	**Target Selection Approach** ☐ **Traditional** ☐ **Phonological Complexity** ☐ **Distance Metric**	**Intervention Target(s) / Position(s)**

4. INTERVENTION APPROACH

Intervention Group	Approach
Contrastive Approaches	☐ Minimal Pairs ☐ Multiple Oppositions ☐ Maximal Oppositions ☐ Empty Set
Approaches for Young Children (2-4 years)	☐ Stimulability Approach ☐ Cycles ☐ PACT
Phonological Awareness / Literacy	☐ Metaphonological Approach ☐ Psycholinguistic Approach
Integrated Intervention Approaches	☐ Morphophonemic Phonological Approach ☐ NSIT ☐ Neuro-Networking ☐ Non-Linear Phonological Approach
Phonetic Intervention Approaches	☐ Core Vocabulary ☐ DTTC ☐ PROMPT ☐ Nuffield Dyspraxia Approach ☐ Traditional Articulation Approach
Other	

5. EVALUATION PLAN

Measurement	Frequency	Criterion
☐ single-word probe ☐ conversational sample		

Speech-Language Pathologist: _____ Date: _____

An 'Advanced' Issue in Assessment: Speech Perception

Benjamin Munson
Department of Speech-Language-Hearing Sciences
University of Minnesota, Minneapolis

Old Concept, New Relevance

- Why should we care about speech perception ability?
- I will talk about it relative to the three themes that emerged in Tim's survey:
  - Knowledge
  - Time
  - Effectiveness and efficiency

Old Concept, New Relevance

- What leads me to talk about this?
- First, it's a topic that I know quite a bit about, and it's one about which I think there are quite a few misconceptions.
- Second, it addresses some of the comments received in Tim's survey:
  - "practice use of newer tools for assessment, current best practice based on solid research, related assessments such as oral-motor evaluation, essential need for hearing evaluation."
  - "Additional methods of addressing treatment needs"
  - "Any new assessment techniques"
  - "Their auditory discrimination ability, their stimulation of the improved or corrected sound and their ability to obtain a large number of responses"
  - " A short overview of what researchers are currently studying in regards to phonological intervention"

Speech Perception: Knowledge

- Let's define our terms first
- *Identification*: can the child associate the correct set of labels with a phoneme (i.e., can the child associate the appropriate range of fricative noise with /s/ and the right range with /ʃ/)?
- *Discrimination*: can the child tell two sounds apart?

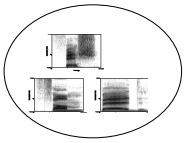
Speech Perception: Knowledge

- *Word Recognition*: ability to recognize words (often in challenging conditions, such as in the presence of competing noise)
- One term we won't talk about: *auditory processing*
  - This term is too general for this discussion

Speech Perception: Knowledge

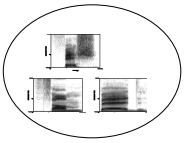
- Speech perception affects production in many different ways
- Children aren't born with the knowledge of how a language sounds, or what they need to do with their tongue/lips/jaw/etc. to make sounds

Speech Perception: Knowledge



•The targets for speech production are auditory representations in long-term memory.
•We say what we want to hear
•We learn how to speak, in part, by learning how we should sound

Speech Perception: Knowledge

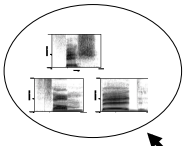


•We achieve these perceptual targets through our knowledge of the **articulation-to-acoustic map**
•We know how the many different ways to make the sounds we want to hear
•We learn to speak, in part, by practicing the many different ways to produce the sounds we hear

"To make the low second-formant frequency in the vowel vowel /u/, I can either round my lips or move the root of my tongue back"

"To make the low third-formant frequency for /r/, I can either curl my tongue back or bunch my tongue root"

Speech Perception: Knowledge



"did I do that correctly?"

We use ***feedback*** to learn the association between articulation and acoustics, and to guide our ongoing speech production

"To make the low second-formant frequency in the vowel vowel /u/, I can either round my lips or move the root of my tongue back"

"To make the low third-formant frequency for /r/, I can either curl my tongue back or bunch my tongue root"

Speech Perception: Knowledge

- The consequence of an impairment in one or more of these is inaccurate speech production
  - The errors that children make are the *consequence* of an impairment in one or more of the 'ingredients' of speech production.
  - The articulatory errors themselves might reinforce the perception problem.

Speech Perception: Knowledge

- A deficit in perception can…
  - Prevent the child from knowing what sounds ought to sound like
  - Hinder the child from learning the relationship between articulation and acoustics

Speech Perception: Knowledge

- Perception problems are reliably found to co-occur with production problems.
  - Representative work on this includes Munson, Edwards, and Beckman (2005 JSLHR); Edwards, Fox, and Rogers (2002 JSLHR); Munson, Baylis, Krause, and Yim (2006 Conference on Laboratory Phonology, available if you send me an E-Mail); and Rvachew and Grawburg (2006, JSLHR)

Speech Perception: Knowledge

- Ergo, it is important to assess the status of a child's speech perception, and potentially to provide remediation for deficits in perception.

Speech Perception: Time

- What would an ideal speech-perception tool look like?
- It should use natural speech—the kind of speech that children produce and perception in their daily lives
  - It wouldn't rely on clinicians' renditions of children's errors
  - It doesn't rely on the hyper-articulated productions used in conventional 'auditory bombardment' protocols.
  - (Those samples were taken from Jan Edwards and Mary Beckman's paidologoV database)

Speech Perception: Time

- It should involve natural tasks, like identification, rather than artificial tasks like discrimination.
  - Rarely is the child presented with two speech tokens and asked to judge whether they are the same or different.
  - Same/different tasks in general might be hard for a child.
- It should be easy to administer, to score, and to interpret

Speech Perception: Time

- These are all incorporated in the SAILS tool, developed by Susan Rvachew
  - http://www.avaaz.com/clinicaltools/usingsails.htm
- SAILS costs about $450.00.

Speech Perception: Time

- SAILS uses natural productions by children and adults, and has many assessment modules for different sound contrasts

Speech Perception: Time

- Another possibility: Locke's (1980) procedure
- Imagine that you find a child who has a [w] for /r/ substitution.
- Find three objects whose names are minimal triplets (i.e., differ only in one phoneme), and which contain the:
  - Target sound (e.g., /r/)
  - Substituted sound (e.g., /w/)
  - Control sound (e.g., /d/)

Speech Perception: Time

Pictures: Google Images



- Ask the child "is this an X"
  - Is this a **r**ip? Is this a **wh**ip? Is this a **d**ip?
  - Pair all of the questions with all of the pictures (i.e., there are 9 possible questions). Randomize the order, and don't just ask each question/picture combination only once.
  - Tally the correct and incorrect responses

An example of a specific "[w] for /r/" perception problem

	Is it a whip?	Is it a rip?	Is it a dip?
	*Always "yes" (or an inconsistent response?)*	*Always "yes" (or an inconsistent response?)*	No
	*Always "no" (or an inconsistent response?)*	*Always "no" (or an inconsistent response?)*	No
	No	No	Yes

This pattern would suggest that the child's production problems co-occur with a tendency to hear /r/ as [w]

Speech Perception: Time

- This procedure isn't perfect…
  - It presumes that the clinician's productions are faithful renditions of the child's productions.
  - It counts doesn't correct for 'false alarms'.
- …but it doesn't cost $450.00

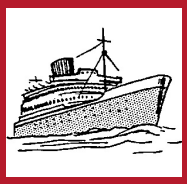
Speech Perception: Effectiveness and Efficiency

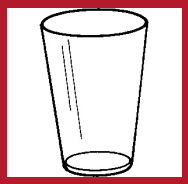
- A variety of intervention studies by Susan Rvachew and colleagues has shown that incorporating SAILS's perception-training modules to production training leads to better progress than is achieved through production-training along
- This is true regardless of the therapy type that the perception training is paired with.

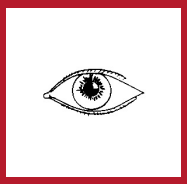
Speech Perception: Effectiveness and Efficiency

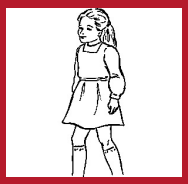
- In the SAILS intervention modules, listeners hear a natural token and see either a picture or an "X." They click on the picture if it's correct and the "X" if it's not. They are given feedback.

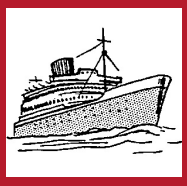


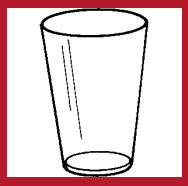


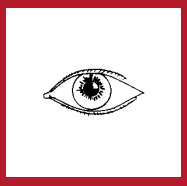


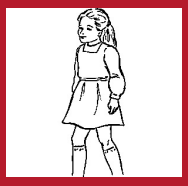










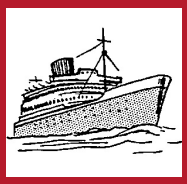
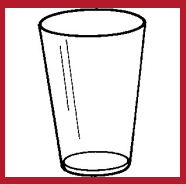


Speech Perception: Effectiveness and Efficiency

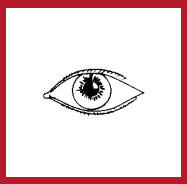
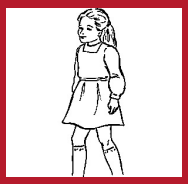
- It is possible, with a cheap recorder and free images, to mock-up something like this.
- In an in-service I did in the Chanhassen, MN public schools, we made the following tool to enhance the perception of /s/ and /ʃ/.

/s/ - /ʃ/

Forced choice with feedback

Benjamin Munson, ASHA Phonology
Panel, 11/22/2008

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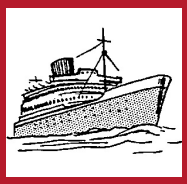
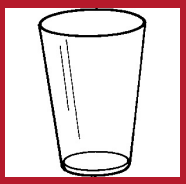

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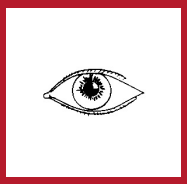
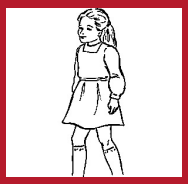
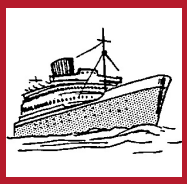
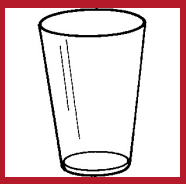



Benjamin Munson, ASHA Phonology
Panel, 11/22/2008

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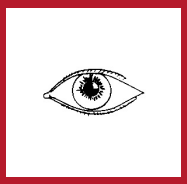
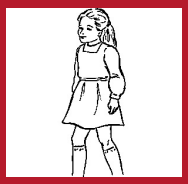

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Speech Perception: Effectiveness and Efficiency

- It remains to be seen whether these kinds of interventions would improve speech-production performance as reliably as SAILS does, but given the impressive gains that SAILS shows, it seems likely that it would help children in therapy.

Conclusions

- **Knowledge:** Speech perception is a critical component to speech-sound acquisition and speech-sound knowledge.
- **Time:** with the right tools, a child's speech perception ability can be assessed and treated in therapy.
- **Efficacy and effectiveness:** speech perception training enhances speech-production outcomes.

Questions

- Ask away!
- I'm at Munso005@umn.edu
- Disclaimer: I have no financial interest in SAILS, though I am actively collaborating with Susan Rvachew

Some Treatment Approaches

Gregory L. Lof, Ph.D., CCC-SLP
Program Director/Associate Professor
MGH Institute of Health Professions
Boston, MA
glof@mghihp.edu

Therapy Approaches

Therapy Approaches

- Traditional Therapy
- Minimal Pairs
- Maximal Pairs
- Multiple Opposition
- Metaphon
- Metaphonological

(Van Riper) Traditional Approach

Traditional Articulation Approach

This is the probably the most widely used approach for changing speech sound productions.

This motor approach may be used inappropriately for children with phonological errors.

Phonological Therapy Approaches

Minimal Pairs

Minimal Pairs

Also known as…

Minimal Opposition
Contrast Therapy

Minimal Pairs

- Use pairs of words that differ by one phoneme only
- Used to establish contrasts not present in the phonological system
- Usually words are selected with one word as the target, the other the replacement
- Child should be stimulable for correct target sound

Minimal Pairs

bow ***boat***

Minimal Pairs

- Have child say both words in the pair
- Show a communicative confusion if both words are said the same
- Use objects that can be manipulated (not only pictures)

Minimal Pairs

- Works best if child is able to motorically produce the target sound
- Can be used for a variety of disorder types when showing confusing can help children understand WHY a change in speech production changes meaning

Maximal Pairs

Maximal Pairs

Also known as…

Maximal Opposition Therapy

Maximal Pairs

- Word pairs have multiple feature contrasts (maximal oppositions)
- Features can differ on place, manner, and voicing
- The oppositions contrast only two sounds
- The target sound is compared to a maximally different one

Maximal Pairs

Multiple feature contrasts

m	ʃ
Nasal	Oral
Voiced	Voiceless
Non-Strident	Strident
Anterior	Posterior

Maximal Pairs

- Suppose a child produces t/ʃ
- Minimal Pairs:
  top/shop, tip/ship, two/shoe
- Maximal Pairs: Contrasted with maximally opposed sound from / ʃ / (perhaps /m/)
- For example:
  moo/shoe; me/she; Mack/shack,

Maximal Pairs

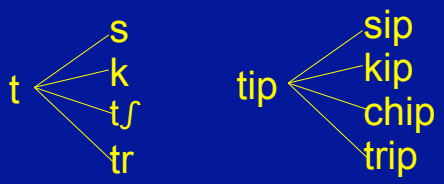
- Best used for moderate/severe children (very unintelligible)
- Meant to change the child's entire phonological system
- Best for children with severely limited phonetic inventory
- Should be stimulable for missing sounds

Multiple Oppositions Approach

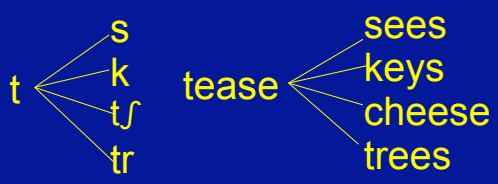
Multiple Oppositions

- Much like minimal pairs, but pairs all or most errors simultaneously
- Good approach if child substitutes a single sound for multiple sounds
- Child confronts the rule using multiple contrasts
- For example: / t / for / s, k, tʃ, tr /

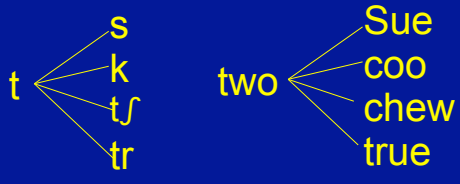
Multiple Oppositions



Multiple Oppositions



Multiple Oppositions



Multiple Oppositions

- Best for children who have many homonyms

Metaphon Approach

Metaphon Approach

- Developed in the UK
- Specifically teaches the child to focus on languages phonological details
- Focuses on phonological awareness (a type of metalinguistic awareness)

Metaphon Approach

Two Phases of Therapy

Phase 1

Developing phonological awareness

Phase 2

Developing communicative awareness

Metaphon Approach

Phase 1: Developing phonological awareness

PURPOSE:

To capture the child's interest in sounds and the entire sound system

HOW ACCOMPLISHED:

Teaching concepts of sounds (e.g., long/ short, noisy/quiet) → pair with sounds →use minimal pairs to show meaning difference

Metaphon Approach

Phase 2: Developing communicative awareness

PURPOSE:

To use concepts from Phase 1 but now the child produces

HOW ACCOMPLISHED:

Use procedures much like the traditional minimal pair approach

Metaphonological Approach

Metaphonological Approach

- Intervention enhances early phoneme awareness and letter knowledge, combined with intervention to improve speech intelligibility.
- Work on intelligibility, phoneme awareness, and letter-name/letter-sound knowledge.

Metaphonological Approach

- Phoneme blending
  (adult says: b—a—l, child says "ball")
- Phoneme segmentation
  (adult says: "ball", child says "b—a—l")
- Phoneme manipulation
  Say "boat" without the "t"
  What word would you make if you put "o" before "pen"?

Co-Occurring Language Deficits

- Alternating speech with language targets every other week
  - A speech goal is the focus for one week, then a language goal for the next week
  - Has shown to be greater gains in both speech and language following this alternating schedule

Co-Occurring Language Deficits

- Select bound morphemes that mark both tense and agreement
  e.g., "walked", "hits"

  Use forced choice:
  "The man runs or jumps?"

Nonspeech Oral Motor Exercises

Nonspeech Oral Motor Exercises

NOT a therapy technique that has shown to be beneficial for bringing about speech sound changes

Nonspeech Oral Motor Exercises

Some Exercises From the Web:

http://www.widesmiles.org/cleftlinks/WS-563.html

Tongue Push-Ups

Objective: to strengthen tongue

Procedure: child holds up an M&M, cheerio, etc. on upper ridge just behind teeth (not on teeth) and pushes up with tongue.

Tongue Pops

Objective: To strengthen tongue

Procedure: Suck tongue up on the top of the mouth, pull it back and release it, making a popping sound.

Pointy Tongue

Objective: To increase tongue movement and coordination

Procedure: Protrude tongue and point it at the tip.

Nonspeech Oral Motor Exercises

Reasons Why They Don't Work:

- Part-whole training and transfer
- Strengthening the structures
- Relevancy to the act of speaking
- Task specificity
- Warm-up/Awareness/Metamouth

Nonspeech Oral Motor Exercises

Reasons Why They Don't Work:

- Part-whole training and transfer

Breaking the speaking act down to meaningless small tasks will not transfer over to the complex task of speaking.

Nonspeech Oral Motor Exercises

Reasons Why They Don't Work:

- Strengthening the structures

Very little strength is needed for talking;

Probably aren't increasing strength with the exercises;

Strength measurement is subjective and unreliable.

Nonspeech Oral Motor Exercises

Reasons Why They Don't Work:

- Relevancy to the act of speaking

Most of these exercises have movements that are irrelevant to the speaking task (e.g., tongue wagging).

Nonspeech Oral Motor Exercises

Reasons Why They Don't Work:

- Task specificity

Just because the same oral structures are used for speech and nonspeech, they function differently;

Speech is special and is different from nonspeech tasks.

Nonspeech Oral Motor Exercises

Reasons Why They Don't Work:

- Warm-up/Awareness/Metamouth

Children probably cannot make use of the awareness cues with these exercises;

Warm-up for speaking is not necessary because the speaking system is not being overly taxed.

Nonspeech Oral Motor Exercises

If you want speech to change, you must work on speech!

Goal Attack Strategies

Goal Attack Strategies

VERTICAL STRATEGY

One specific sound is worked on one at a time until criteria

Goal Attack Strategies

VERTICAL STRATEGY

For example, the Van Riper Traditional Approach

Goal Attack Strategies

VERTICAL STRATEGY

Production of /s/ in isolation

Goal Attack Strategies

VERTICAL STRATEGY

Production of /s/ initial, then final, then medial syllables

Production of /s/ in isolation

Goal Attack Strategies

VERTICAL STRATEGY

Production of /s/ initial, then final, then medial words

Production of /s/ initial, then final, then medial syllables

Production of /s/ in isolation

Goal Attack Strategies

HORIZONTAL STRATEGY

More than one goal is treated simultaneously

Goal Attack Strategies

HORIZONTAL STRATEGY

Or more than one sound within a pattern is worked on at a time

Goal Attack Strategies

HORIZONTAL STRATEGY

Production of Final Fricatives

/s/ /f/ /z/ /v/ /ʃ/

Goal Attack Strategies

CYCLYCIAL STRATEGY

Goal Attack Strategies

CYCLYCIAL STRATEGY

For example Hodson's Cycles Approach

Goal Attack Strategies

Cycles Approach

- A cycle is a period of time to treat all targeted patterns
- Phonemes within targeted patterns are used to facilitate emergence of the pattern

Goal Attack Strategies

Cycles Approach

- Each pattern is targeted for 2 to 6 hours per cycle
- Each target phoneme within the pattern is facilitated for approximately 60 minutes

Goal Attack Strategies

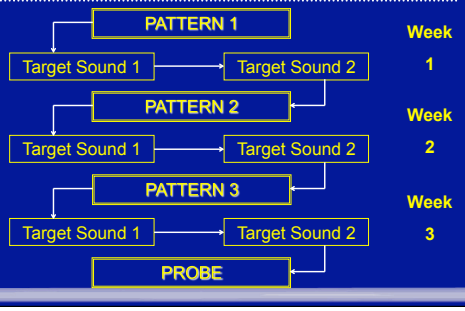
Cycles Approach

- The first cycle lays a foundation and allows children to have early success
- Patterns are recycled during ensuing cycles until they begin to emerge in spontaneous speech

Modified Cycles Approach

- A cycle is 3 weeks; 1 pattern per week
- 2 training sounds per pattern
- Emphasis is eliciting numerous correct productions in 5-10 carefully selected words

Modified Cycles Approach



Modified Cycles Approach

Pattern 1

Produce final consonants in words

Pattern 2

Produce back sounds

Pattern 3

Produce clusters

Modified Cycles Approach

Pattern 1

Produce final consonants in words

Sound 1: /z/

Sound 2: /t/

Modified Cycles Approach

Pattern 2

Produce back sounds

Sound 1: /k/

Sound 2: /g/

Modified Cycles Approach

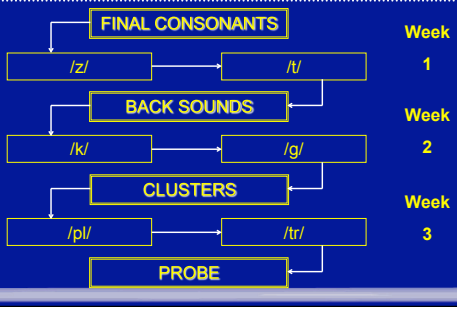
Pattern 3

Produce clusters

Sound 1: /pl/

Sound 2: /kr/

Modified Cycles Approach



Modified Cycles Approach

PROBE

- **At end of 3 weeks, probe to determine emergence.**
- **If sounds ≤ 50% correct, then recycle in words.**
- **If sounds > 50% correct, then use in sentences**

Making Time in Phonological Intervention: Multiple Ways to Skin a Cat

Marc E. Fey, Ph.D.
Department of Hearing and Speech
School of Allied Health
University of Kansas Medical Center
Kansas City, KS, USA
e-mail: mfey@kumc.edu

Some Details About Nora
Fey & Stalker (1986)

- Age: 6;9
- Mostly unintelligible in connected speech to all but her family
- Low average vocabulary comprehension and only slightly poorer grammatical comprehension
- Expressive grammar delay but not pragmatics
- History of otitis media and PE tubes
- Signs of mild oral and speech apraxia
- Believed by many to share a twin language with her brother

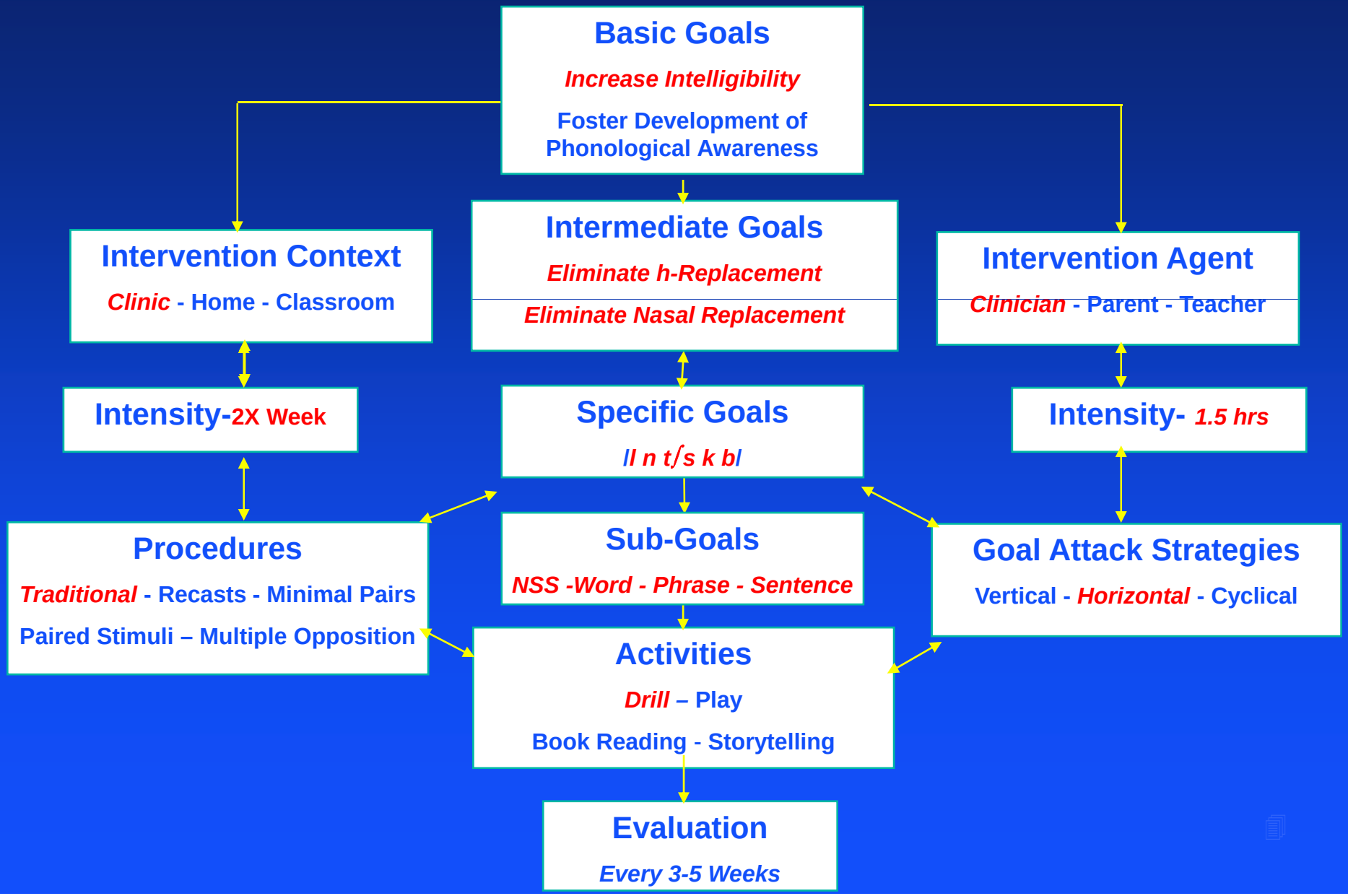
Intervocalic Targets

- number → [ˈnʌhi]
- lucky → [ˈlʌhi]
- pencil → [ˈpɪho]
- balloon→ [bəˈlun]
- forget→ [fəˈgɪ]
- Betina→ [bəˈtihə]
- another→ [əˈnʌ hə]
- people → [ˈpiho] ~ [piˈpo]
- baby → [ˈbehi] ~ [beˈbi]

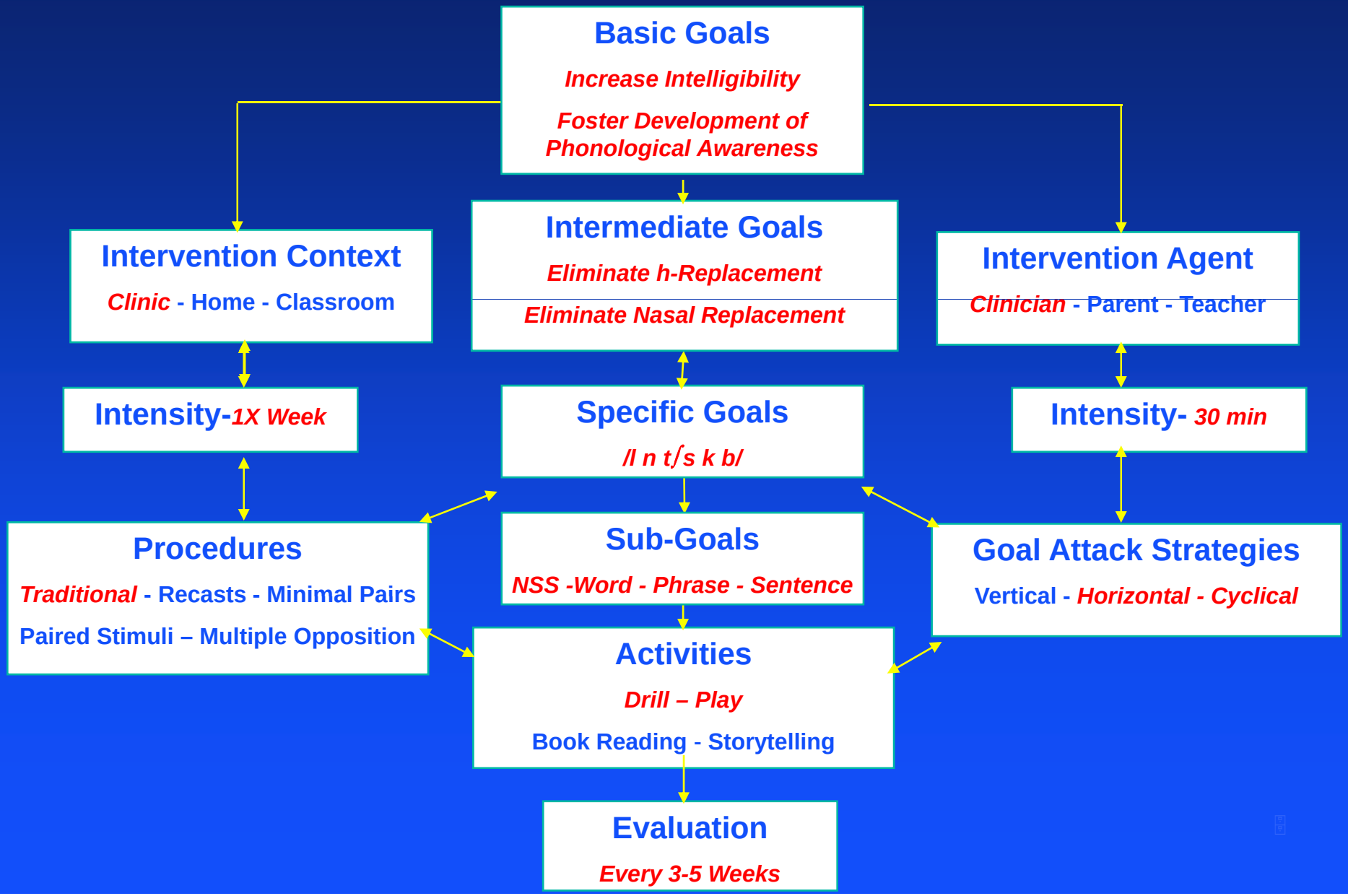
Final Targets

- group → [gwum]
- like → [l aɪŋ]
- mad → [mædⁿ]
- knife → [naɪn]
- here → [hɪ əŋ]
- light → [l aɪgᵑ]
- lid → [lɪd] ~ [lɪdⁿ]
- ball → [bɔŋ] ~ [bɔgᵑ]

F & S's Phonological Intervention Plan

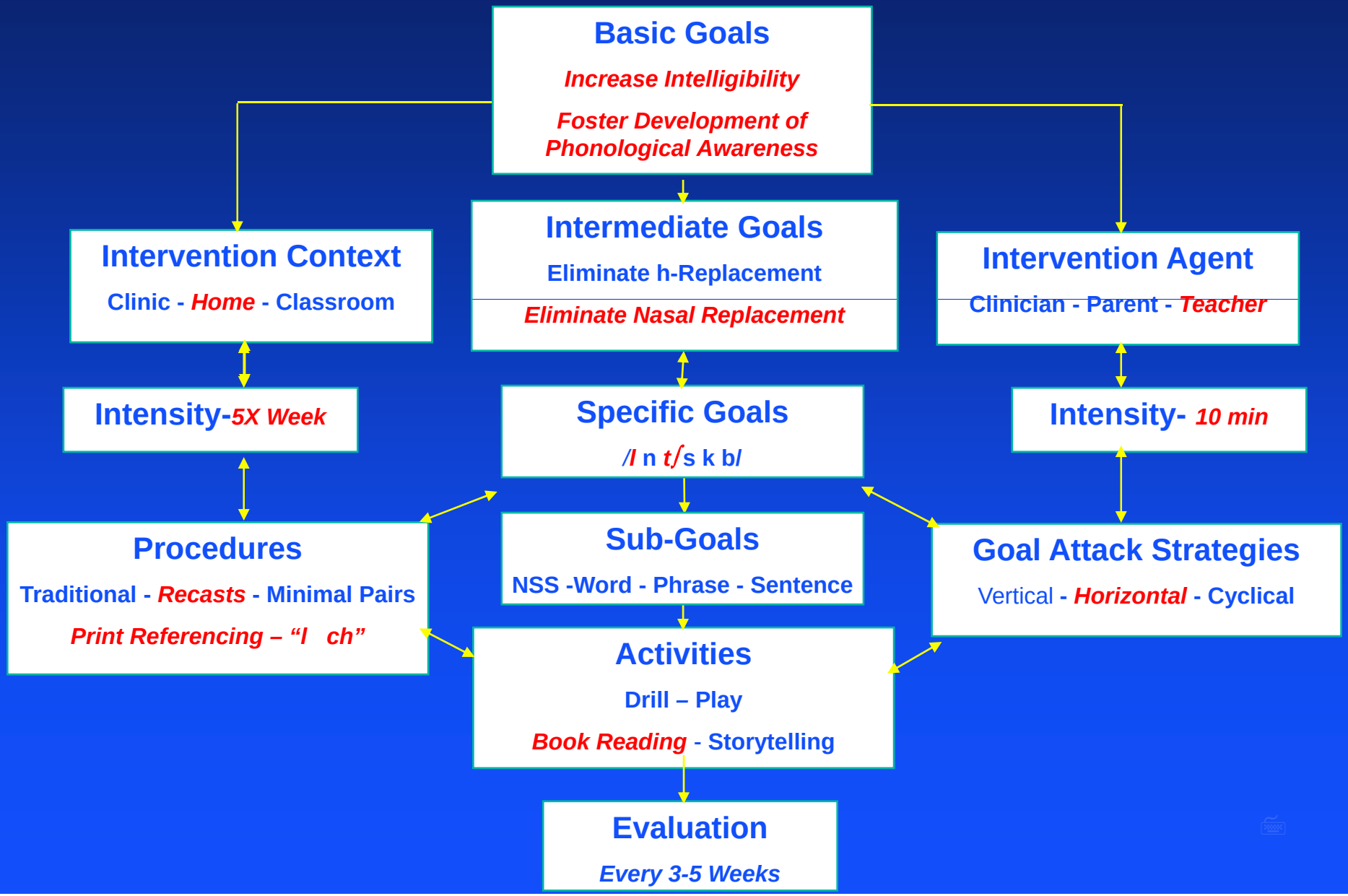


Nora's New Intervention Plan: Clinician



Nora's Intervention Plan: Parent

Nora's Intervention Plan: Teacher



Feedback and Questions

- What have we discussed today that can help your work with children who have phonological disorders?
- What additional ideas have you come up with during this session?
- What do you still have questions about?

Conclusion

- On behalf of the panel and the children with phonological problems that you work with

Thank You!

For

- the **Time** that you have dedicated
- the **Knowledge** that you share
- the **Effectiveness** and **Efficiency** of the services that you provide