

An Innovative Educational Approach to Addressing Articulation Differences

(Offering short-term, intensive general education services to children with single sound errors in San Diego City Schools)

The following information was presented in a poster session during the ASHA Schools Conference in Phoenix, AZ in July 2006 by Jennifer Taps, M.A., CCC-SLP. It is provided here with permission from this author. Please direct questions to Jennifer at jtaps@sandi.net.

Why Reform?

The Reform

- To shift services to students with single sound articulation errors from *special* education to *general* education
- To offer single sound students intensive, short-term, high quality services within general education
- To provide intensive professional development and support to district SLPs

2004 Survey of 178 SDCS SLPs

- 821 IEPs for single sound differences only
- 14 full-time SLPs
- Average length of treatment: 3 years
- Average amount of service: 30 minutes per week
- Most SLPs used traditional approach

Critical Features of Reform

- Buy-in from administration, staff and community
- Proposal: Benefits and Phase-in Implementation Plan
- Meetings and workshops with stakeholders
- Adherence to Special Education eligibility requirements
- Speech Improvement Class at every site
- Articulation Resource Center and *Articulation Differences and Disorders Manual*

Research of Social Ramifications, Crowe-Hall (1991)

- Videos of children with mild speech disorders and typical speech
- Interviewed 4th and 6th graders about their perceptions of these peer groups
- Kids with mild speech errors viewed more negatively than peers with typical speech
- Encouraged school districts to intervene because of possible social/emotional impact

Getting Started

Speech Improvement (SI) Class at Every Site

- Gradual implementation during the first year

Articulation Differences and Disorders Manual

(http://www.csha.org/resource_center/CSHAArticulationManual.pdf)

- Overview of Service Delivery Approaches
- Assessment Procedures
- Screening, Full Assessment, IEP, 504
- Protocols, Checklists, Rating Scales
- Sample Reports
- Speech Improvement Class
- Description, Permission and Record Forms, Inventories
- Intervention Approaches
- Traditional, Complexity & Motor Learning

Adhere to Eligibility Requirements

- In SDCS, students must meet three criteria to qualify for IEP services:
 - *Significantly* interferes with communication AND
 - Attracts adverse attention AND
 - Adversely affects educational performance

Speech Improvement or IEP?

- If the SLP suspects a disability that is impeding educational progress, then refer, assess, and develop an IEP, if appropriate
- No compelling evidence in the research that single sound articulation disorders impact educational performance
- If the SLP thinks there is a difference or RTI is more appropriate, then offer Speech Improvement Class

Other Considerations

- Determine if difference is developmental or dialectical
- Lateral /s/ production not developmental (intervene at any time)
- After the speech normalization boundary of 8.5 years, it's much harder to remediate a sound (Shriberg, Kwiatkowski & Gruber, JSLHR, 37, October 1994 – *“Findings are interpreted to support the hypothesis of a critical period for speech-sound development, with long-term normalization of significant speech delay reaching a chronological age boundary at approximately 8.5 years.”*)
- Research suggests that children who are stimutable for target sounds will acquire them without intervention

Ideal Candidates for the Speech Improvement Class

- 1st, 2nd, or 3rd grade (preferably around age 7 which leaves 1.5 years before the speech normalization boundary)
- Working on single sound or cognates or perhaps two sounds
- Does not meet three special education criteria for articulation

- Nonstimulable for target sounds (monitor students who are stimuable, treatment probably not warranted)
- Student is motivated, will attend 60 minutes per week, and will practice (home practice is required)

Best Practices

- Intensive services (60 minutes per week and homework) yield better generalization
- Mass practice is essential (at least 150 productions per session)
- Self-monitoring is essential to progress
- Research does not support oral motor activities for sound production
- ASHA NOMS (National Outcome Measurement System) Project
 - See http://www.asha.org/members/research/NOMS/noms_data.htm and Jacoby, Lee, Kummer, Levin, Creaghead, AJSLP, 11, 2002
 - Suggests that it takes 17-20 hours to remediate a single sound
 - Recommends intensive services; two 30 minute sessions ideal
 - Home practice critical for generalization of skills

Routes to Speech Improvement Class

Student has IEP (from any district)

1. IEP → Dismiss from IEP → Enroll in SI Class
 - a. Ask teacher to complete *Describing Speech Misarticulations* prior to meeting (pp 29 from manual)
 - b. Review progress at the annual IEP meeting
 - c. If the student does not meet criteria, consider dismissal
 - d. Follow dismissal procedures (assess with performance-based tools from manual)
 - e. Students may enroll in SI Class; Parents sign *Permission to Enroll* (pp 47 from manual)
2. IEP → Keep on IEP (Rarely)
 - a. If a student currently receives 30 minutes per week, consider adding another 30 minutes to accelerate intervention
 - b. SLPS can do this in two ways:
 - Convene an IEP and add 30 minutes for 60 minutes total, or
 - Add 30 minutes as a general education service (30 minutes on IEP, 30 minutes SI Class)
 - c. Parents sign *Permission to Enroll*

New Student

3. Enroll in SI Class
 - a. Teacher completes *Describing Speech Misarticulations*
 - b. If three criteria are not met and student is a good candidate for SI class, enroll in class. Require home practice completion.
 - c. Ask parents to sign *Permission to Enroll*

Class Procedures

Procedures Before Enrollment

- Provide principal and staff with information about the Speech Improvement Class option (email Jennifer Taps for Powerpoint presentation)
- Teachers identify students and complete *Describing Speech Misarticulations*
- Determine whether or not student is a candidate (can also monitor students who are young or who are stimulable for target sound(s))
- Send home *Permission to Enroll* and *Homework Contract*
- After parents sign and return, work with teacher to schedule class time
- Administer *Speech Improvement Sound Inventory* prior to SI Class for baseline
- Schedule two 30-minute sessions (if possible) for 20 weeks of intensive therapy
- Provide daily home practice opportunities
- Periodically check on progress and communicate with parents and teacher
- Document attendance (on back of *Speech Improvement Sound Inventory*)

Home Practice

- General education
- Can require homework
- Otherwise, SLP can go to next student on the waiting list

Procedures for Completion

- Document attendance
- Document homework completion
- Readminister *Speech Improvement Sound Inventory* to compare with baseline
- Award *Certificate of Completion*
- Reenroll if more practice is needed (at the discretion of SLP)

Motor Learning Treatment Strategies (Phonetic)

Motor Learning Skill Acquisition – Three Phases (Skelton, 2004)

1. Pre-practice
 - a. Brief placement/production phase (OK to return to this phase at any time)
 - b. Teach target sound in isolation and syllables until 80% accurate
 - c. May need to teach new strategies or make phonetic adjustments in how student produces the sound(s)
2. Practice
 - a. Randomized variable sequence of tasks
 - b. Schema theory predicts greater transfer and retention because “rules” are flexible
 - c. Student practices at different levels (i.e. words, phrases, sentences, conversation) or different numbers during each session (more than one context; not “fixed” at a particular level as in traditional treatment)

3. Generalization

- a. Practice skills in more representative contexts of communication
- b. Provides natural consequences of performance, including listener's reaction

Important Note About Pre-Practice/Placement Strategies

- Many new SLPs are not trained in this area; critical to provide resources for this skill
- Dr. Bleile's new book: *Late Eight* (Plural Publishing)
- Dr. Secord's revised book: *Eliciting Sounds* (2nd edition available January 2007)

Randomization Principle

- "Blocked practice (all practice items of target stimulus practiced together before moving on) leads to better performance in given sessions, but randomized practice results in better retention/motor learning." (Skelton, 2004)

Randomization Can Be Accomplished By:

- Switching levels of complexity (sounds, words, phrases, sentences, conversation)
- Switching the order of target words
- Switching the number of repetitions
- Changing body position – standing, sitting, etc.
- Self-monitoring while doing a million other things (as kids do)
- Changing stress, prosody, intonation, emotional context, rate of speech

Feedback

- Offer delayed feedback by waiting 5 seconds (differs from traditional artic therapy)
- Provide more feedback during the pre-practice phase than for the practice phase
- Provides opportunity for student to assemble/retrieve motor plans (Yorkston et al, 1999)
- In cognitive research, adults benefited from specific feedback, but children decreased performance
- Offers student more opportunities for self-monitoring

Complexity Theory Principles (Phonemic)

Complexity Principles

- Guided by language laws and sound features
- Treatment targets sounds that are non-stimulable, phonetically-complex, and later-developing
- Results in generalization to untreated sounds and contexts

Language Laws

- Universals – implicational relationships found across languages
- Laws can be used to guide treatment
- Treating marked structures creates change in unmarked structures

Relevant Laws for SI Students

- Fricatives in initial position → fricatives in final position (Smith, 1973)
- Clusters → Singletons (Gallagher & Shriner, 1975)
- Three-element clusters → two-element /s/ and non-/s/ clusters (Gierut & Champion, 2001)

Maximal Pairs or Minimal Pairs

- Used to show contrast in *meaning* of sound differences
- Cycles approach – target sound and substitution in contrast (“wink” vs “rink”)
- Complexity – target sound and sound with maximal feature differences (“sink” vs “rink”)

Real Words

- Current research (Gierut & Morrisette, 2005 and Storkel & Morrisette, 2002) suggests that the following kinds of words yield the most generalization in the system:
 - High frequency words (common, real) have greater impact than treating low-frequency words
 - Low density words (few rhyming counterparts) have greater impact than high density words (many rhyming counterparts)

Sample High Frequency Words (Storkel, 2004)

- Low-density /r/ words: radio, river
- High-density /r/ words: run, read

Nonsense Words

- Frequently utilized because these words are novel and therefore not “frozen” in a student’s system
- May break into old pattern
- Treatment strategy since 1930s
- Use caution when applying this strategy with students who also have language disorders

Ways to Elicit Mass Practice (150 items per session)

Activities

- Taking own data on chart (creates ownership)
- Use tally counters to challenge students to produce 150 items or more (Go to www.tallycounterstore.com)
- Have students subvocalize (say it with their “voices turned off”) during other students’ turns to increase the motor practice and number of repetitions (may have to monitor initially)
- Have students track their totals using the practice charts and/or the counters
- Add up the group total to use in contest across groups to see who produces the most
- Manipulatives can be used for random activities

Centers

- Create “centers” like in a general education classroom; Students do something different every minute or so while practicing
- Four stations might include the following:
 - one student at the board saying words
 - one student putting a puzzle together saying single words
 - one student lying on the floor practicing sentences
 - one student typing on the computer practicing phrases
- Encourages students to use good sounds in a variety of contexts
- Say “switch” at random times for them to move to a new station
- Provide a written (visual) sequence to follow (e.g. board → table → computer → floor → board)

Benefits

To the Student

- Access to high quality services
- Accurate diagnosis and identification
- Shorter treatment time
- Increased practice in classroom and at home

To the SLP

- More technical support through Articulation Resource Center
- Increased ability to manage workload (5 SI students count toward caseload total)
- More latitude in deciding who needs help and when
- Flexible scheduling
- Waiting list
- Less paperwork
- Introduces RTI to participating sites