Intensive Literacy-Based Intervention for English- and Spanish-Speaking Children

Challenging current models of intensity of intervention

Kara Anderson, M.A.
Ellen Kester, Ph.D.
Scott Prath, M.A.

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BILINGUISTICS
The Origins of Our Pilot Study

- We have large, diverse caseloads that grow throughout the school year.

Questions:
- Is there a more efficient way to serve our students and not sacrifice quality?
- What are other academic areas doing to improve services?
- Can academic models work within the framework of speech pathology?
Our Discussion Today

- Identify successful intervention techniques and service delivery models.
- Discuss research on improving clinical services
- Review results of a clinic camp that tests these ideas for speech-language intervention
- Apply these successes to the school setting
- Provide therapy plans for implementing changes to how you provide intensity of services
Professional Constraints

- Location of Service
- Format of Service (group vs. Individual)
- Dosage (Frequency, Intensity of Services)
- Insurance
- Federal Mandates
  - IDEA
  - Least Restrictive Environment
Best practices

What aspects of our profession influence intervention practices?
Improved Language Outcomes

Gillam and Loeb, (2010) reported that four components of language intervention were associated with successful language outcomes

- Intensity
- Active Attention
- Feedback
- Rewards
Increased Vocabulary

- Repetition of Vocabulary words requires exposure of at least 15 times (Pui Fong, 2010)
- Longer interventions
- Teaching words through definitions and in context (Stahl & Fairbanks, 1986)
- More word encounters
- Active processing (Baumann et.al, 2003 and A. Graves, 1986)
Evidence-based Intervention Techniques

- Literacy-based intervention
- Imitation
- Modeling
- Cloze procedures
- Binary choice
- Expansion
- Recast
- Scaffolding
Current and Alternative Delivery Models

Why do we provide services for the amount of time that we currently do?
Mixed Results

- Studies on the following topics found mixed results
  - Dosage (frequency)
  - Parent implemented vs. clinician administered
  - Classroom base vs. Pull-out
  - School vs. Clinic
    - (Schooling et. al., 2010)
Current Delivery Models

- 30/60 minutes twice a week
- direct service on average 2-4 kids per group
- Who ever decided on 30 minutes/week?
Alternative Delivery Models

• Limited research on group intervention
  • Adults with aphasia
  • Hearing impairments
  • Stuttering
  • Very little address speech & language
Alternative Delivery Models

Recent Studies found intensity as a consistent factor that contributed to increased language outcomes

Define “Intensity”

- “The number of hours of intervention over a specific time period.” (Lovaas)
- “The ratio of adult to children” (Graff et. al.)
- “The quality and quantity of services in a given period of time.” (Barnett & Escobar)
- “The number of specific teaching episodes per unit of time.” (Guralnick)

From Ukrainetz et. al. 2008
How Much is Necessary?

- How often should we use therapeutic techniques in a session?
- Which techniques work best for working on specific goals?
  - (Ukrainitz, et.al. 2008)
Research on intensity-over-time is contradictory

- Intervention of more than 8 weeks was more effective than less than 8 weeks (From Ukrainitz et.al, 2008; Law et. al, 2004)

Contradicted by:

- Intensive 6 week service delivery model showed 5x the gains as a traditional 2-year service delivery model (Gillam & Loeb, 2010)
  - Number of delivery hours being equal
Study on Intensity

- Could we do a study of intensity that applies to a public school population?
- How does the Bilingualistics pilot study look different from the Gillam et.al. (2010) than the study?
- How would we create a larger scale study in the public school setting?
Study on Providing an Alternative Delivery Model

Could we alter the frequency and intensity of speech therapy and get equal or greater results?
Applying a Pilot Study of Intensity to our Field.

<table>
<thead>
<tr>
<th>Gillam Study</th>
<th>Bilingual Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Individual</td>
<td>▪ Group</td>
</tr>
<tr>
<td>▪ Monolingual English</td>
<td>▪ Bilingual population</td>
</tr>
<tr>
<td>▪ 1:40/day for 6 weeks</td>
<td>▪ 2:00/day for 2 weeks</td>
</tr>
<tr>
<td>▪ Literacy-based, computer program and academic</td>
<td>▪ Literacy-based program</td>
</tr>
<tr>
<td>program</td>
<td>▪ Children with speech, language,</td>
</tr>
<tr>
<td>▪ Only enrolled children with language impairments</td>
<td>hearing, social and cognitive</td>
</tr>
<tr>
<td></td>
<td>disorders enrolled in program</td>
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</table>
The current study will examine the efficacy of a short-term intensive group intervention program for both English and Spanish-speaking children ages 3-8 with all classes of disorders.
Methods

- Participants: 6 children per group
  - 2 groups of 3-5 year old bilinguals
  - 2 groups of 3-5 year old English speakers
  - 1 group of 6-8 year old bilinguals
  - 1 group of 6-8 year old English speakers
- Time
  - Two weeks sessions, 4 days a week
- Intensity
  - 2 hours a day
- Disorders
  - All disorders (Autism, speech and language impairment, Down Syndrome)
<table>
<thead>
<tr>
<th>Time</th>
<th>Schedule</th>
<th>Activity</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-9:15</td>
<td>Circle Time</td>
<td>Name recognition: Clinician holds up name card.</td>
<td>1. Phoeme identification</td>
</tr>
<tr>
<td>9:15-9:20</td>
<td>Greeting/</td>
<td>Clinician: Who's name is on the card?</td>
<td>2. Who questions</td>
</tr>
<tr>
<td></td>
<td>Attendance</td>
<td>Students: Jacob!</td>
<td>3. Where questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinician: Where is Jacob?</td>
<td>4. Joint attention</td>
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<tr>
<td></td>
<td></td>
<td>Students: Over there</td>
<td>5. Spatial concepts</td>
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<tr>
<td></td>
<td></td>
<td>Clinician: That's right, he is next to Keith</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Keith, where do I put your name, under the boy or under the girl?</td>
<td></td>
</tr>
<tr>
<td>9:20-9:30</td>
<td>Jobs</td>
<td>Six jobs: lights, table set up, calendar helper, line leader, snack helper</td>
<td>1. Who questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Responsibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Object-action</td>
</tr>
<tr>
<td>9:30-9:35</td>
<td>Calendar</td>
<td>1. Go over months in a year and then dance the Macarena to the</td>
<td>1. sequences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>songs (January, February, etc.).</td>
<td>2. numbers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Review Days, snap the Days of the week song.</td>
<td>3. categories</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Review date, Today is X, Yesterday was X, Tomorrow will be X</td>
<td>4. verb tense</td>
</tr>
<tr>
<td>9:30-9:35</td>
<td>Music</td>
<td>Children choose two songs to dance to:</td>
<td>1. Increase sentence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinician: Which songs do you want to hear? Pick 2.</td>
<td>length</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student: I want the animal song and the Hokey Pokey song.</td>
<td>2. WhMl questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide visual choices. After student picks the songs, place the</td>
<td>3. sequence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pictures on a board that say First, then.</td>
<td></td>
</tr>
<tr>
<td>9:35-9:40</td>
<td>Language</td>
<td>Clinician: Today we are going to learn about our body parts and</td>
<td>1. Object-action</td>
</tr>
<tr>
<td></td>
<td>goal</td>
<td>why we need them. We use our nose to smell, eyes to see, etc.</td>
<td>Goal generation</td>
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<tr>
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<td></td>
<td>Draw a word map, ask the kids to label body parts.</td>
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<tr>
<td></td>
<td></td>
<td>Clinician: What do we do with our eyes?</td>
<td></td>
</tr>
<tr>
<td>9:45-9:55</td>
<td>Phonological</td>
<td>Clinician: We are also going to learn about the letter /s/. It makes a</td>
<td>1. final /s/</td>
</tr>
<tr>
<td></td>
<td>goal</td>
<td>sound like a snake.</td>
<td></td>
</tr>
<tr>
<td>9:55-10:25</td>
<td>Literacy</td>
<td>Read the book: From Head to Toe, by Eric Carle.</td>
<td>1. Object actions</td>
</tr>
<tr>
<td></td>
<td>Center</td>
<td>Use scaffolding techniques while reading the book with the students.</td>
<td>Final /s/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Focus on language target.</td>
<td></td>
</tr>
<tr>
<td>10:00-10:25</td>
<td>Stations: 10</td>
<td>Station 1: Auditory bombardment/</td>
<td>Station 2: language station with</td>
</tr>
<tr>
<td></td>
<td>minutes each</td>
<td>phonological awareness</td>
<td>SLP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Words with final /s/. Color</td>
<td>Station 3: speech station with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>while listening to the words.</td>
<td>SLP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. The phonological awareness activity: matching game</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rhyming words (eyes, ties)</td>
<td></td>
</tr>
<tr>
<td>10:25</td>
<td>Snack time</td>
<td>Ball game: Do you want to throw the ball with your hands or kick the ball with your feet?</td>
<td>Trace the student's speech on butcher paper. Draw the parts of the body and practice the final /s/</td>
</tr>
<tr>
<td>10:40</td>
<td>Literacy</td>
<td>Cheese sandwiches. Students make sandwich. Place two raisins for eyes, one for a nose. Lettuce for hair, tomato for lips.</td>
<td>1. sequence</td>
</tr>
<tr>
<td></td>
<td>Center</td>
<td>Group activity: Read the book again and act out the actions.</td>
<td>2. body parts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stomp with my feet, etc.</td>
<td>3. object-action</td>
</tr>
<tr>
<td>10:50</td>
<td>End of the</td>
<td>Review the language and phonological targets. Play end of the</td>
<td>1. object-action</td>
</tr>
<tr>
<td></td>
<td>day</td>
<td>day music. Students gather backpacks and form line at the door</td>
<td>2. final /s/</td>
</tr>
<tr>
<td>11:00</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Day 1
Day 8
Results

- Complete data sets on 13 students
- (4 Spn, 9 Eng)
- Standardized testing
- Narrative language sample
  - Phonological errors
  - Word/utterance errors
  - Type-token ratio
  - MLU
  - Story grammar components
MLU in Words

English Mean Length of Utterance

Spanish Mean Length of Utterance
Total Number of Words

English Total Number of Words

Spanish Total Number of Words

Pre TNW
Post TNW
Number of Different Words

English Number of Different Words

Spanish Number of Different Words

Pre NDW
Post NDW
Number of Word Errors

English Word Errors

Spanish Word Errors

PreWord Errors

PostWord Errors

IS  CL  RG  BE  IG  JF  NC  AC  IR

AG  AA  JR  KV
Implications

- Short-term intensive intervention is beneficial for speech and language development
- Children can benefit from intensive group intervention
- This could have implication for service delivery in the schools
From Theory to Application

How can I adapt therapy to take advantage of changes in intensity?
IEP Service Delivery Wording

- 30/60 minutes / week
- 240 minutes in 9 weeks
- 6 sessions across four weeks
Therapy Planning-Caseload 50 across 2 schools

- **Intensity**
  - Students will receive 8 hours of therapy every six weeks

- **Forming groups**
  - Groups classified by disorder or age?

- **Alternating schedule**
  - 3 groups of 16 students (1, 2, 3)
  - Each group will have an rotating schedule (a, b, c, d, e)
  - Group are rotated through two week cycles along with alternating daily schedule
# Therapy Planning-Caseload 50 across 2 schools

1 Rotation of a two week session

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>ARD day</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00-9:00</td>
<td>Group a</td>
<td>Group e</td>
<td>Group d</td>
<td>Group c</td>
<td></td>
</tr>
<tr>
<td>9:05-10:05</td>
<td>Group b</td>
<td>Group a</td>
<td>Group e</td>
<td>Group d</td>
<td></td>
</tr>
<tr>
<td>10:10-11:10</td>
<td>Group c</td>
<td>Group b</td>
<td>Group q</td>
<td>Group e</td>
<td></td>
</tr>
<tr>
<td>11:10-11:40</td>
<td>lunch</td>
<td>lunch</td>
<td>lunch</td>
<td>lunch</td>
<td>lunch</td>
</tr>
<tr>
<td>11:40-12:40</td>
<td>Group d</td>
<td>Group c</td>
<td>Group b</td>
<td>Group a</td>
<td></td>
</tr>
<tr>
<td>12:40-1:40</td>
<td>Group e</td>
<td>Group d</td>
<td>Group c</td>
<td>Group b</td>
<td></td>
</tr>
<tr>
<td>1:45-2:45</td>
<td>Flexible hour</td>
<td></td>
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</tbody>
</table>
Schematic of a Therapy Session

- Introduction – greeting
- Pre-Reading
- Reading
- Post reading
- Direct Therapy
- Closing
Sample Sessions

- PPCD
- School Age

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Future Studies

- What is next?
  - What would happen across a semester
  - Is the next step in the study.

- What are the results between disorder classes
  - We saw gains in all but bigger gains in some
Brainstorming

In groups
- List different possibilities for service delivery models
- Brainstorm roadblocks or reasons it would be difficult to implement such a program
- Identify potential solutions to those roadblocks


Schooling, T., Venediktov, R., Leech, H., EB Evidence-Based Systematic Review: Effects of Service Delivery on the Speech and Language Skills of Children From Birth to 5 Years of Age ASHA October 2010


Schooling, T., Venediktov, R., Leech, H., (2010) EB Evidence-Based Systematic Review: Effects of Service Delivery on the Speech and Language Skills of Children From Birth to 5 Years of Age ASHA October 2010


Pui Fong, Kan (2020). Vocabulary Development and Function in Bilinguals: Comparison Across the Life span. Presentation at the American Speech Language Association Annual Convention, Philadelphia