Functional Assessment-Based Interventions with Students who are Deaf or Hard of Hearing: Two Case Studies

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Agenda

- Application of FABIs with Deaf or Hard of Hearing (DHH) students
- Two FABI case studies
- Implications for the future
- Questions
Why FABI?

- Effective with other populations and other environments
- Increased potential for behavior problems
  - Delayed language/communication skills
  - Additional disabilities
- Decreased access to academics and socialization
- Teachers underprepared to work with students with behavioral needs
Status of FBAI for DHH children

- Article describing FBA methods and fictitious case study
- One known FABI study demonstrating effectiveness with DHH students
Two Case Studies

- Dearth of literature for FABI with DHH students
- Extend the findings by Gann and colleagues (2015)
- Provide real-life examples of FABIs for teachers and practitioners working with DHH students with additional disabilities and behavioral needs
Student 1

- 9 years old
- 3rd grade
- Male
- Moderate to severe hearing loss
- Spoken Language with sign support
- Bilateral cochlear implants
- Attention Deficit Hyperactivity Disorder (ADHD)
Student 2

- 4 years old
- Preschool
- Female
- Severe to profound hearing loss
- ASL (≈ 60 expressive signs)
- Cochlear implant on right, hearing aid on left
- Cognitive impairment, motor and developmental delays (18-24 months)
Functional Behavior Assessment

- Identify target and replacement behaviors
- Informant interviews
- Student interviews
- A-B-C observations
- Determine function using the Function Matrix
Function Matrix

<table>
<thead>
<tr>
<th></th>
<th>Positive Reinforcement (access something)</th>
<th>Negative Reinforcement (avoid something)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangibles/Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensory</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Target Behavior – Student 1

Disruptive behavior which included:
- repeatedly calling out his teacher’s name
- constantly asking for assistance or clarification
- repeatedly showing his work to his teacher
## Student 1
**Function:** Positive Reinforcement - Attention

<table>
<thead>
<tr>
<th>Positive Reinforcement</th>
<th>Negative Reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attention</strong></td>
<td></td>
</tr>
<tr>
<td>Teacher interview:</td>
<td></td>
</tr>
<tr>
<td>(1) Student is attention seeking</td>
<td></td>
</tr>
<tr>
<td>(2) He constantly shows me his work for praise.</td>
<td></td>
</tr>
<tr>
<td>(3) The more students try to get my attention, the more he’s going to try.</td>
<td></td>
</tr>
<tr>
<td>Observation: teacher provided attention to students on 6 occasions</td>
<td></td>
</tr>
<tr>
<td><strong>Tangible/Activity</strong></td>
<td></td>
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<tr>
<td><strong>Sensory</strong></td>
<td></td>
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</tbody>
</table>
Replacement Behavior – Student 1

Quietly working at desk as demonstrated by

(1) raising his hand when asking a question or for clarification

(2) showing his work to his teacher when the work is completed
Target Behavior – Student 2

Non-compliant behavior which included:

(1) running away
(2) not following teacher directions
(3) refusal to transition to the next activity
# Student 2
Function: Positive reinforcement - attention and Negative reinforcement - avoid activity

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<thead>
<tr>
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<tbody>
<tr>
<td><strong>Attention</strong></td>
<td>Teacher Interview:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1) Thinks it’s funny to run away</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) Intervenes if behaviors more intense.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observation: Staff ran after her on 5 occasions</td>
<td></td>
</tr>
<tr>
<td><strong>Tangibles/Activities</strong></td>
<td></td>
<td>Teacher interview: Problems with transitions and unstructured activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Observation: Avoided transition/activity 5 times</td>
</tr>
<tr>
<td><strong>Sensory</strong></td>
<td></td>
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</tr>
</tbody>
</table>
Replacement Behavior – Student 2

Compliance defined as following teacher directions by transitioning to the next activity with the use of visual supports (e.g., picture cards).
Function-Based Decision Model

1. **Conduct FBA**
2. **Select Replacement Behavior**
   - Can the Student Perform the Replacement Behavior? (Yes or No)
     - Yes: Do Antecedent Conditions Represent Best Practice? (Yes or No)
       - Yes: **Method 2: Improve the Environment**
       - No: **Method 1 & 2: Teach the Replacement Behavior and Improve the Environment**
     - No: **Method 3: Adjust the Contingencies**
   - No: Do Antecedent Conditions Represent Best Practice? (Yes or No)
     - Yes: **Method 1: Teach the Replacement Behavior**
     - No: Continue with Conduct FBA
Function-Based Intervention – Student 1

1. Can the student perform the replacement behavior? No.
   - Student was aware of the expectation (Interview).
   - However, did not demonstrate appropriate behavior during observations.

2. Do antecedent conditions represent best practices? No.
   - Many students in the class called out teacher’s name.
   - The teacher was intermittently responding to all of the students.
Conduct FBA

Select Replacement Behavior

Can the Student Perform the Replacement Behavior?

No

Do Antecedent Conditions Represent Best Practice?

Yes

Method 1: Teach the Replacement Behavior

No

Method 1 & 2: Teach the Replacement Behavior and Improve the Environment

Do Antecedent Conditions Represent Best Practice?

Yes

Method 2: Improve the Environment

No

Method 3: Adjust the Contingencies
<table>
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<tr>
<th>Method Elements</th>
<th>Resulting Intervention Elements</th>
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| Adjust the antecedent conditions to teach new behaviors (Method 1). | Teach student:  
• to raise hand for a question or clarification  
• if teacher is working with another student, must wait to be called on. |
| Adjust antecedent conditions so the replacement behavior is more likely to occur (Method 2). |  
• Remind student to finish all work before showing teacher completed worksheet  
• Post a sign to remind student and classmates to raise their hands |
Positive Reinforcement – Student 1

<table>
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<tr>
<th>Method Elements</th>
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<tr>
<td>Provide appropriate reinforcement for the replacement behavior (Method 1 and 2).</td>
<td>Student will access attention through praise given by teacher when replacement behavior is demonstrated.</td>
</tr>
</tbody>
</table>
# Extinction Procedure – Student 1

<table>
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<tr>
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</table>
| Withhold consequence that previously reinforced the target behavior (Method 1 and 2). | • Teacher will not respond to student when he calls out; will only respond to the student when hand is raised.  
  • When student demonstrates target behavior, he will not receive praise or attention.  
  • Teacher will only respond to the student’s request to look at his work when complete. |
Testing the Intervention – Student 1

- Design: ABAB

- Partial Interval Recording for 15 min during math (30 sec intervals)

- IOA during one baseline and one intervention session
Testing the Intervention – Student 1

- Treatment integrity checklist completed at the end of each observation
- Social Validity: Intervention rating scale
  - Completed by teacher
  - Onset and conclusion of the intervention
Testing the Intervention – Student 1

Student 1's Working Quietly Behavior

% of Observed Intervals

Baseline 1  Intervention 1  Baseline 2  Intervention 2
Implementation – Student 1

Student 1's Appropriate Requests for Help

- Baseline
- Intervention

% of Opportunities

Baseline vs. Intervention

Baseline: Red
Intervention: Orange
Results – Student 1

- The intervention was effective, but student needed more practice to become fluent.
- Generalized to other students in the class with a near extinction of the target behavior.
- The teacher felt that due to the student’s impulsivity it would take longer for him to reach the behavioral objective.
- Teacher described classroom as quieter and less chaotic.
Social Validity – Student 1

Teacher strongly agreed:

- intervention targeted an important goal
- target behavior warranted use of this intervention
- procedures were reasonable for her classroom
- procedures were put in place as designed
- improved the concern
- achieved the targeted goal
1. Can the student perform the replacement behavior? No.
   - Student is not able to follow teacher directions and does not understand what is expected of her. Occasionally, she will follow a direction or transition without incident, but this behavior is unpredictable.

2. Do antecedent conditions represent best practices? No.
   - The lack of a predictable routine and structured transitions allow for the target behavior to occur. Limited use of visual supports.
Conduct FBA

Select Replacement Behavior

Can the Student Perform the Replacement Behavior?

Yes

Do Antecedent Conditions Represent Best Practice?

Yes

Method 1: Teach the Replacement Behavior

Method 1 & 2: Teach the Replacement Behavior and Improve the Environment

No

Method 2: Improve the Environment

No

Method 3: Adjust the Contingencies
# Antecedent Strategies – Student 2

<table>
<thead>
<tr>
<th>Method Elements</th>
<th>Resulting Intervention Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adjust the antecedent conditions to teach new behaviors (Method 1).</strong></td>
<td>Teach student to use visual system for transitions through:</td>
</tr>
<tr>
<td></td>
<td>• Modeling</td>
</tr>
<tr>
<td></td>
<td>• Prompting</td>
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<tr>
<td></td>
<td>• Support (e.g., hand over hand)</td>
</tr>
<tr>
<td><strong>Adjust antecedent conditions so the replacement behavior is more likely to occur (Method 2).</strong></td>
<td>• Reduce number of transitions from room to room</td>
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<td></td>
<td>• Provide preferred sensory activity for “down-times” between activities.</td>
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</tbody>
</table>
## Positive Reinforcement – Student 2

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<tr>
<th>Method Elements</th>
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</thead>
<tbody>
<tr>
<td>Provide appropriate reinforcement for the replacement behavior (Method 1 and 2).</td>
<td>Provide student with social and/or sensory reinforcers for each step:</td>
</tr>
<tr>
<td></td>
<td>a. Holds card in her hand</td>
</tr>
<tr>
<td></td>
<td>b. Puts card on wall with matching picture</td>
</tr>
<tr>
<td></td>
<td>c. Begins activity</td>
</tr>
<tr>
<td></td>
<td>d. Puts card in “finished” basket at the end of the activity</td>
</tr>
</tbody>
</table>
### Extinction – Student 2

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Withhold consequence that previously reinforced the target behavior (Method 1 and 2).</td>
<td>If student runs away, teachers must follow after her for purposes of safety.</td>
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<tr>
<td></td>
<td>Teachers will not:</td>
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<tr>
<td></td>
<td>• pick her up</td>
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<td></td>
<td>• give compression massages</td>
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</tbody>
</table>
Testing the Intervention – Student 2

- Design: ABAB

- % of opportunities for 35 min observations before, during, and after lunch

- IOA during one baseline and one intervention session
Testing the Intervention – Student 2

- Treatment integrity checklist completed at the end of each observation
- Social Validity: Intervention rating scale
  - Completed by teacher
  - Onset and conclusion of the intervention
Testing the Intervention – Student 2

Student 2's Compliant Behavior

% of Opportunities

Baseline 1  Intervention 1  Baseline 2  Intervention 2
Implementation – Student 2

Student 2's Compliant Behavior

% of Opportunities

Baseline
Intervention

Δ TI

Baseline
Intervention

Δ  Δ
Results of the Intervention – Student 2

- Significant change.
- Visual schedule cards provided student with a “bridge” for both receptive and expressive communication.
- Student sat at the lunch table longer; expressive signing increased.
- Teacher wanted to generalize the visual schedule to other parts of the day.
Teacher strongly agreed:

- intervention targeted an important goal
- target behavior warranted use of this intervention
- procedures were reasonable for her classroom
- procedures were put in place as designed,
- improved the concern
- achieved the targeted goal
Conclusions

- FABIs were effective with DHH students
- Use the teacher’s and student’s preferred communication mode
- Must be knowledgeable about DHH students
Conclusions

- Take account of student’s history as a learner when determining the function of the behavior and intervention procedures

- Consider the interaction between the hearing loss and additional disabilities
Implications for the Future

- Extend the research by implementing FABIs with DHH students of varied ages, communication modes, and educational settings.

- Teachers and practitioners in Deaf education need to become familiar with FABI procedures and pursue these procedures as a viable option for behavior change programming with their students.
Questions?
References


Ferro & Wood (2015). The ECE Child-Focused Interview (Contact J. Ferro at: jferro@usf.edu for information and permissions)


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