Efficacy and Effectiveness Evaluation: A Behavior Research Example

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Presentation at the Institute of Education Sciences Research Conference
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NCSER Project Officer
Today’s agenda

- Review the IES goal structure and the role of efficacy and effectiveness research
- Describe the National Behavior Research Coordination Center (NBRCC) and its program of efficacy research
- Describe and provide interim efficacy results from one behavior intervention, First Step to Success
- Provide an overview of the national effectiveness study of First Step to Success
IES’s research goal structure

- **Goal 1:** Identify interventions that may have an impact on student outcomes and factors that may mediate or moderate effects
- **Goal 2:** Develop interventions
- **Goal 3:** Conduct efficacy or replication trials
- **Goal 4:** Conduct effectiveness trials of interventions at scale
- **Goal 5:** Develop or validate data and measurement systems and tools
Efficacy and effectiveness research

- “Efficacy trials test if an intervention does more good than harm when delivered under **optimal** conditions.”

- “Effectiveness trials test if an intervention does more good than harm when delivered under **real-world** conditions.”

NBRCC purposes

- To coordinate, synthesize, and analyze data and findings from four Behavior Research Centers (BRCs)
  - BRCs are experimentally testing the efficacy of interventions for young children with serious behavior problems at school.
- To foster dissemination of knowledge on effective practices to consumers, practitioners, and policymakers
Behavior Research Centers and PIs

- Oregon Research Institute–University of Oregon
  – Hill Walker, Ph.D.
- University of South Florida–University of Colorado - Denver
  – Don Kincaid, Ph.D., Glen Dunlap, Ph.D., and Phil Strain, Ph.D.
- University of Washington
  – Douglas Cheney, Ph.D., and Scott Stage, Ph.D.
- Vanderbilt University–University of Minnesota–Virginia Commonwealth University
  – Joseph Wehby, Ph.D., Jennifer McComas, Ph.D., and Kevin Sutherland, Ph.D.
Coordination center strategy

**Common:**
- Research questions
- Core sample
- Randomized design
- Measures
NBRCC research questions

Effects

- Do the examined interventions improve the behavior at school of students with severe behavior problems?

- Do the examined interventions improve the academic performance and participation of students with severe behavior problems?

- Are the effects of the examined interventions sustained for 1 year?

Continued…
NBRCC research questions

Effects

- How do these effects vary across the examined interventions?

- For whom do the examined interventions work best? Least well? (e.g., student grade level, gender, severity of behavior problems)

- In what contexts (e.g., classroom, school) do the examined interventions work best? Least well? (e.g., schools with behavior support systems, more highly qualified teachers)

Continued…
NBRCC research questions

Implementation

- How do fidelity (i.e., procedural adherence, quality, and intensity) and social validity from the teacher’s perspective vary across the examined interventions?

- How do variations in contextual factors relate to variations in fidelity?
Core sample selection

- Students begin intervention in grades 1 through 3.
- Standardized screening instrument and procedure
  - Systematic Screening for Behavior Disorders (SSBD)
  - BRCs include students ranked highest with externalizing behavior problems in core sample.
Randomization strategies

- Tailored to specifics of the intervention
  - USF at the student level
  - ORI at the classroom level
  - UW and VU

- Examine data on distribution of students with disabilities across schools (by age and category of disability)
- Match schools willing to participate on critical variables
- Then randomly assign pairs of schools to intervention and comparison groups
Data sources

- Behavior and Academic Outcomes
  - Office discipline referrals (ODRs)
  - Social Skills Rating System (SSRS) Teacher version—Student behavior and academic competence
  - Woodcock-Johnson III (WJ III) Tests of Achievement—Letter-Word Identification subtest
  - Oral Reading Fluency (ORF) passages
  - Academic Engaged Time (AET)—Observations of the amount of time student spends visibly and actively engaged in relevant academic material

Continued…
Data sources

- **Implementation**
  - **Fidelity** measured repeatedly throughout intervention by observational checklists to determine:
    - **Adherence**—Whether each procedure specified for an intervention is implemented
    - **Quality**—How competently each procedure is implemented
    - **Dosage**—Amount of treatment provided
  - **Social validity** from teachers’ perspectives:
    - **Acceptability**—General support for intervention
    - **Positive effects**—for participating student(s) and classroom
  - **Alliance**—standardized scale measures perceptions of the strength of the relationship between implementer (e.g., coach) and client (e.g., teacher)

Continued…
Data sources

Context
- Classroom Atmosphere Rating Scale (CARS)
- Student Enrollment Survey—basic demographics
- School Record Survey (e.g., IEP/504 plan status, instructional settings)
- Classroom / Teacher Survey (e.g., classroom and teacher characteristics, teacher supports, teacher self-reported skills to work with students with behavior problems)
- School-wide Evaluation Tool (SET)—Interview and observation protocol assesses extent to which school implements critical features of school-wide positive behavior supports
- School Characteristics Survey—Items include student characteristics, school climate, and staff and program resources
- Common Core of Data (CCD) from National Center for Education Statistics
First Step to Success: Background

- Secondary-level intervention
- Three components
  - Universal screening
  - School intervention
  - Family-based intervention
- Over approximately 12 weeks, designed to teach young children behaviors and approaches to learning that lead to school success
- Instructs parents (in 6 home visits) how to teach their children skills for school success
- Efficacy study implemented in Albuquerque Public Schools, New Mexico

Continued…
First Step to Success: Background

- Developed from a **model development grant** funded by OSEP from 1992-1996
- Has been implemented in school districts in more than 25 states, 4 Canadian Provinces, Australia, and New Zealand
- Since 1992, FSS has been the subject of dozens of research studies and evaluations
First Step to Success: Evidence of efficacy

Ed Feil, Ph.D.
Oregon Research Institute
First Step to Success: Intervention principles

- Teachers are powerful positive reinforcers.

- Identify and reduce problem behavior.
  – Hitting, kicking, yelling, taking toys.

- Identify and increase positive behaviors.
  – Cooperating, talking with “inside voice,” playing appropriately with toys.
First Step to Success

- A program of screening and interventions designed for young children at risk for the development of antisocial behavior.
- **Behavior Coach** serves as a bridge, working with the child, parents, and teachers.
- Screening: SSBD.
- Interventions: CLASS and homeBase.
CLASS program

- Positive behavior management program
- Children learn how to:
  - Attend to the teacher
  - Get along with others
  - Participate in activities
CLASS principles

- Teacher provides clear expectations.
- Parents and teacher give attention for appropriate behavior.
- Parents and teacher give little attention for negative behavior.
Procedures

- Screening for children at risk for behavior disorders
- **Green/red** card provides feedback
- Frequent to intermittent feedback
- **80% green** gets class goal
  - e.g., 5 minutes extra recess, popcorn
- Coach starts and teacher continues.
Days 1-5: Behavior coach leads program

- Coach gives feedback.
- Teacher gives verbal praise.
- Student earns class reward for 80% green.
- Student brings card home.
- Parent rewards student.
- Behavior coach contacts home.
Behavior coach’s role

<table>
<thead>
<tr>
<th>Time</th>
<th>Length</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>20 min.</td>
<td>Every 30 sec.</td>
</tr>
<tr>
<td>Day 3</td>
<td>20 min.</td>
<td>Every 2 min.</td>
</tr>
<tr>
<td>Day 5</td>
<td>30 min.</td>
<td>Every 5 min.</td>
</tr>
</tbody>
</table>
Days 6-15: Teacher leads program

- Teacher gives feedback.
- Teacher gives verbal praise.
- Student earns class reward for 80% green.
- Student brings card home.
- Parent rewards student.
- Behavior Coach contacts home.
Teacher’s role

<table>
<thead>
<tr>
<th>Time</th>
<th>Length</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 6</td>
<td>30 min.</td>
<td>Every 5 min.</td>
</tr>
<tr>
<td>Day 8</td>
<td>1 hour</td>
<td>Every 10 min.</td>
</tr>
<tr>
<td>Day 10</td>
<td>All day</td>
<td>Every 10 min.</td>
</tr>
<tr>
<td>Day 30</td>
<td>All day</td>
<td>Every 10 min.</td>
</tr>
</tbody>
</table>
Day 15-30:
Teacher continues program

- Teacher gives feedback.
- Teacher gives verbal praise.
- Student earns class reward every 2nd or 3rd day.
- Student brings card home.
- Parent rewards student.
- Teacher contacts home.
- Start of homeBase.
homeBase

- Brief student-focused program for parent/caregiver
- Skills to improve school adjustment
- Opportunities to practice
- Supports strong home-school partnership
# homeBase

<table>
<thead>
<tr>
<th>Week 1: Sharing school</th>
<th>Week 4: Let’s figure it out</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Student practices giving information</td>
<td></td>
</tr>
<tr>
<td>■ Parent listens and gives encouragement</td>
<td></td>
</tr>
<tr>
<td>■ Problem-solving: Stay calm and brainstorm</td>
<td></td>
</tr>
<tr>
<td>■ Parent helps to guide, encourage, and suggest steps to goals</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 2: Cooperation</th>
<th>Week 5: If you are nice to them, they’ll be nice to you</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Parent and student learn strategies</td>
<td></td>
</tr>
<tr>
<td>■ Sticker card or chart at home</td>
<td></td>
</tr>
<tr>
<td>■ Initiation skills</td>
<td></td>
</tr>
<tr>
<td>■ Empathy and self-control</td>
<td></td>
</tr>
<tr>
<td>■ Cooperation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 3: Remembering limits</th>
<th>Week 6: You’re great and you can do it</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Giving effective directions and encouragement</td>
<td></td>
</tr>
<tr>
<td>■ Time-out procedures</td>
<td></td>
</tr>
<tr>
<td>■ Confidence-building</td>
<td></td>
</tr>
</tbody>
</table>
Testing efficacy

1. Randomized trial in local school district
   – N = 48 over 2 years with children/teachers randomized to First Step or wait-list/control (Walker et al., 1998)
   – Collect data at baseline, post intervention (treatment) or 2nd baseline (control) and post treatment (control)

2. Single subject
   – Identical twins across multiple baselines (Golly et al., 2000)

3. Oregon Statewide Initiative
   – Non experimental replication (Walker et al., 2005)

4. Randomized trial in large diverse school district
   – N = 250 over 2 years with children/teachers randomized to First Step or control (control teachers received training at end after trial is completed)
   – Collect data at baseline, post intervention, and next year follow-up
**Study 1: ANCOVA with experimental and wait-list control groups across five dependent measures**

<table>
<thead>
<tr>
<th>Measures</th>
<th>Baseline M (SD)</th>
<th>Baseline M (SD)</th>
<th>Post-Intervention (Exp.) M (SD)</th>
<th>Post-Intervention (Exp.) M (SD)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive Teacher Rating Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>22.68 (5.03)</td>
<td>20.83 (4.42)</td>
<td>28.8 (4.19)</td>
<td>22.10 (4.93)</td>
<td>F = 22.91 (1,45)***</td>
</tr>
<tr>
<td>Wait-List/Control</td>
<td>22.68 (5.03)</td>
<td>20.83 (4.42)</td>
<td>28.8 (4.19)</td>
<td>22.10 (4.93)</td>
<td></td>
</tr>
<tr>
<td>Maladaptive Teacher Rating Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>32.40 (6.74)</td>
<td>32.17 (7.82)</td>
<td>23.52 (8.70)</td>
<td>31.63 (7.03)</td>
<td>F = 18.54 (1,45)***</td>
</tr>
<tr>
<td>Wait-List/Control</td>
<td>32.40 (6.74)</td>
<td>32.17 (7.82)</td>
<td>23.52 (8.70)</td>
<td>31.63 (7.03)</td>
<td></td>
</tr>
<tr>
<td>Teacher Ratings on the CBC Aggression Subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>22.24 (10.92)</td>
<td>22.00 (11.05)</td>
<td>13.54 (9.33)</td>
<td>22.82 (10.04)</td>
<td>F = 16.85 (1,44)***</td>
</tr>
<tr>
<td>Wait-List/Control</td>
<td>22.24 (10.92)</td>
<td>22.00 (11.05)</td>
<td>13.54 (9.33)</td>
<td>22.82 (10.04)</td>
<td></td>
</tr>
<tr>
<td>Teacher Ratings on the CBC Withdrawn Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>5.00 (3.83)</td>
<td>6.22 (5.21)</td>
<td>3.08 (3.39)</td>
<td>4.45 (4.54)</td>
<td>F = 0.23 (1,44)</td>
</tr>
<tr>
<td>Wait-List/Control</td>
<td>5.00 (3.83)</td>
<td>6.22 (5.21)</td>
<td>3.08 (3.39)</td>
<td>4.45 (4.54)</td>
<td></td>
</tr>
<tr>
<td>Classroom Observation(s) of Academic Engaged Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>64.00 (10.59)</td>
<td>58.78 (18.74)</td>
<td>83.36 (21.09)</td>
<td>68.18 (20.35)</td>
<td>F = 5.65 (1,45)*</td>
</tr>
<tr>
<td>Wait-List/Control</td>
<td>64.00 (10.59)</td>
<td>58.78 (18.74)</td>
<td>83.36 (21.09)</td>
<td>68.18 (20.35)</td>
<td></td>
</tr>
</tbody>
</table>
Raw score profile of cohort 1 across measures pre and post intervention for First Step

Norms are +/- 1 SD

Teacher Scores

Adaptive  Maladaptive  CBC-Aggression  CBC-Withdrawal  Class Observation

Pre  Post  1st Grade  2nd Grade
First Step to Success twin study 2
Study 3: Oregon statewide First Step to Success replication initiative

- Oregon state legislature funded a 2-year period to begin making the First Step program available to all schools.
- Outside evaluator
  Human Services Research Institute of Salem
- Evaluation results closely replicated those obtained in the initial trial.
- Found positive consumer satisfaction levels.
- These results were obtained despite high variation in fidelity and implementation quality.
## Study 4: Behavior Research Center participant characteristics

<table>
<thead>
<tr>
<th></th>
<th>Comparison (n = 91)</th>
<th>Intervention (n = 96)</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age M (SD)</strong></td>
<td>7.04 (0.92)</td>
<td>7.22 (1.01)</td>
<td>-1.24</td>
</tr>
<tr>
<td><strong>Female n (%)</strong></td>
<td>24 (26.4%)</td>
<td>21 (21.9%)</td>
<td>0.52</td>
</tr>
<tr>
<td><strong>Spanish-speaking n (%)</strong></td>
<td>14 (15.4%)</td>
<td>7 (7.3%)</td>
<td>2.98</td>
</tr>
<tr>
<td><strong>Hispanic n (%)</strong></td>
<td>54 (60.0%)</td>
<td>50 (52.1%)</td>
<td>4.02</td>
</tr>
<tr>
<td><strong>ELL n (%)</strong></td>
<td>17 (18.9%)</td>
<td>13 (13.7%)</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>Free or reduced-price lunch n (%)</strong></td>
<td>44 (63.8%)</td>
<td>55 (70.5%)</td>
<td>0.76</td>
</tr>
</tbody>
</table>
Study 4: Behavior Research Center preliminary results

Figure 1. Adaptive Behavior

<table>
<thead>
<tr>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>35</td>
<td>55</td>
</tr>
<tr>
<td>40</td>
<td>60</td>
</tr>
</tbody>
</table>

Normative mean

p < .001

\[ n^2 = .17 \text{ (large/medium)} \]

Externalizer mean

Cnt

Exp
Study 4: Behavior Research Center preliminary results

Figure 2. Maladaptive Behavior

Externalizer mean

Normative mean

p<.001

$n^2=.09$ (large)
Study 4: Behavior Research Center preliminary results

Figure 3. Academic Engaged Time Observation

- Normative mean
- Externalizer mean

- Pre: Cnt, Exp
- Post: Cnt, Exp

p < .01
n² = .04 (medium/small)
Going to scale with First Step to Success: An IES goal 4 project

John Seeley, Ph.D.
Oregon Research Institute
“Where did the field get the idea that evidence of an intervention’s efficacy from carefully controlled trials could be generalized as the ‘best practice’ for widely varied populations and settings?”

*L.W. Green, 2001*
Learning from public health research: The RE-AIM framework

Expands standards for randomized control trials of the CONSORT statement by suggesting evidence must be presented on an intervention’s

- **Reach**—Number, proportion, and representativeness of participants

- **Efficacy/effectiveness**—Impacts on important outcomes

- **Adoption**—Number, proportion, and representativeness of agents who implement the intervention

- **Implementation**—Fidelity to the model

- **Maintenance**—Sustained, long-term effects

Purposes of the RE-AIM framework

- To broaden the criteria used to evaluate programs to include **external validity**
- To evaluate issues relevant to program adoption, implementation, and sustainability
- To help close the gap between research studies and practice by:
  - Informing design of intervention
  - Providing guides for adoptees
  - Suggesting standard reporting criteria
### RE-AIM dimensions, definitions, and levels

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REACH</strong></td>
<td>1. Participation rate among eligible individuals</td>
</tr>
<tr>
<td></td>
<td>2. Representativeness of participants</td>
</tr>
<tr>
<td><strong>EFFICACY / EFFECTIVENESS</strong></td>
<td>1. Effects on primary outcomes of interest</td>
</tr>
<tr>
<td></td>
<td>2. Impact on quality of life and negative outcomes</td>
</tr>
</tbody>
</table>

*www.re-aim.org*
### RE-AIM dimensions, definitions, and levels

<table>
<thead>
<tr>
<th>Setting Level</th>
<th>DIMENSION</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADOPTION</td>
<td>1. Participation rate among possible settings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Representativeness of settings participating</td>
</tr>
<tr>
<td></td>
<td>IMPLEMENTATION</td>
<td>1. Extent to which intervention delivered as intended</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Time and costs of intervention</td>
</tr>
<tr>
<td>Both</td>
<td>MAINTENANCE</td>
<td>1. (Individual) Long-term effects of intervention ( &gt; 6 months )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. (Individual) Impact of attrition on outcomes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. (Setting) Extent of continuation or modification of intervention</td>
</tr>
</tbody>
</table>
Reach: Efficacy vs. effectiveness study

<table>
<thead>
<tr>
<th>Efficacy study</th>
<th>Effectiveness study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogeneous, highly motivated sample</td>
<td>Broad, heterogeneous, representative sample</td>
</tr>
<tr>
<td>Exclude those with complications,</td>
<td>Often uses a defined population</td>
</tr>
<tr>
<td>other comorbid problems</td>
<td></td>
</tr>
</tbody>
</table>
Adoption: Efficacy vs. effectiveness

<table>
<thead>
<tr>
<th>Efficacy study</th>
<th>Effectiveness study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usually one setting to reduce variability</td>
<td>Appeals to and works in multiple settings</td>
</tr>
<tr>
<td>Settings with many resources and expert staff</td>
<td>Adaptability to fit setting</td>
</tr>
</tbody>
</table>
### Implementation: Efficacy vs. Effectiveness

<table>
<thead>
<tr>
<th>Efficacy study</th>
<th>Effectiveness study</th>
</tr>
</thead>
<tbody>
<tr>
<td>By research staff closely following specific protocol</td>
<td>By variety of different staff with competing demands, using adapted protocol</td>
</tr>
</tbody>
</table>
Maintenance: Efficacy vs. effectiveness

<table>
<thead>
<tr>
<th>Efficacy study</th>
<th>Effectiveness study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often not an issue at the setting level</td>
<td>Setting level maintenance equally important as individual level maintenance</td>
</tr>
<tr>
<td>Focus on individual level</td>
<td></td>
</tr>
</tbody>
</table>
First Step to Success effectiveness study: Initial research questions

Reach

- What are the characteristics of the students participating in First Step?
- How representative are they of the full sample of eligible students?
- How well is representativeness maintained over time?

Adoption

- What are the characteristics of participating districts and schools?
- How well do they represent the range of possible adopters of First Step?

Continued…
First Step to Success effectiveness study: Initial research questions

Implementation

- What is the level of implementation fidelity (adherence, quality, intensity) of First Step?
- How does it differ between teachers and schools?
- What are the incremental costs of implementing First Step?
- What is the level of social validity ascribed to First Step by participating teachers and parents?

Continued…
First Step to Success Effectiveness Study: Core research questions

Effectiveness

- To what extent does First Step improve the behavior at school and the academic performance and participation of students with severe behavior problems?

- For what kinds of students does First Step work best and less well?

- In what contexts (classroom and school level) does First Step work best and less well?

- How do variations in effectiveness relate to variations in implementation fidelity?
First Step to Success effectiveness study: Core research questions

Maintenance

- Are the effects of First Step sustained for 1 year? For 2 years?
- Does maintenance of effects relate to variations in students or contexts?
National Effectiveness Study of First Step to Success

W. Carl Sumi, Ph.D.
SRI International
National Effectiveness Study of First Step to Success: Introduction

- **Goal 4** grant from the U.S. Department of Education, Institute of Education Sciences, National Center for Special Education Research

- Well-developed evidence base for the efficacy of First Step
  - “Manualized” off-the-shelf intervention
  - Solid evaluation framework

- Randomized control trial in 48 schools in 5 diverse elementary school districts across the country

- Evaluators (SRI) independent of program developers (ORI)
Study participants

- **8 to 10 schools** in each district
  - Matched on basic demographics and randomly assigned
  - Half in the **intervention** condition receive *First Step*
  - Half in the **usual-care** condition receive typical services
    - Teachers trained in *First Step* at conclusion of data collection
- **6 first- through third-grade students** in each school
  - All students screened with SSBD
  - 1 student per class participates in each condition each year
  - In year 2, intervention teachers implement *First Step* again with another student
  - Estimated total samples
    - 288 students in intervention
    - 144 students in usual care
Collaborating with schools

 Participating schools:

- Allow teachers to participate in the study
  - Are reimbursed $200 for substitutes so participants can attend 1-day training
- Inform all parents of children in selected classrooms about class-wide screening
- Identify behavior coaches *(intervention schools only)*
Collaborating with teachers

**All participating teachers:**

- Conduct the class-wide screening
- Help evaluators obtain parental consent
- Complete a questionnaire and a behavior checklist for each participant
  - Receive $25 stipend for each completed questionnaire
- Allow classroom and student observations
- Allow administration of a brief reading assessment of each participant

Continued…
Collaborating with teachers

**Intervention teachers:**
- Attend a 1-day training
  - Receive $150 stipend
- Allow behavior coach to work with student and to provide consultation as needed
- Implement CLASS component starting on day 6
Collaborating with parents

**All** participating parents:
- Consent to participate in the study
- Complete a behavior rating scale
  – Receive $10 for each completed questionnaire

**Intervention** parents:
- Meet weekly (for 45 minutes) with behavior coach for 6 weeks
- Implement First Step at home
- Complete a satisfaction survey
Collaborating with behavior coaches

Behavior coaches:

- Attend 2-day training
  - Receive $600 stipend for each participating family
- Work 1:1 with student
  - Establish reward program
  - Teach, model, and role-play appropriate skills
- Work with classroom peers
  - Explain and reinforce program with entire class
  - Implement and monitor program for the first 5 days
- Implement homeBase component with family
Sample selection criteria

- Students begin intervention in grades 1 through 3.
- Teachers rate students using a standardized screening instrument and procedure.
  - Systematic Screening for Behavior Disorders (SSBD).
  - Teachers complete Gates 1 and 2.
  - Students with highest SSBD score are asked to participate.
    - If consent is not obtained for that student, student with next highest ranking is recruited.
Student-level information

- **Student Enrollment Survey**
  Basic demographics (gender, ethnicity, primary language, free or reduced-price lunch status)

- **Student Record Survey**
  School records information:
  - IEP/504 Plan status
  - Instructional settings (i.e., percentage of instructional time in general education classes)
  - Absences
  - Office Discipline Referrals (ODRs)

Continued…
Student-level assessments

- **Social Skills Rating System (SSRS)** – Teacher and Parent versions
  - Social skills, problem behaviors, and academic competence
- **Woodcock-Johnson III Letter-Word Identification Subtest**
  - Reading skills
- **Oral Reading Fluency (ORF)**
  - Ability to read aloud expressively
- **Academic Engaged Time (AET)**
  - Active engagement in relevant academic material over two 15-minute observations
Classroom-level information

- **Classroom Atmosphere Rating Scale (CARS)**
  - 30-minute observation of intervention classrooms (e.g., student compliance, cooperation, problem solving)

- **Classroom / Teacher Survey**
  - Classroom characteristics (e.g., student enrollment)
  - Teacher characteristics (e.g., years experience, degrees)
  - Teacher support (e.g., training, classroom aides)
  - Teacher self-reported skills to work with students with behavior problems
School-level information

- **School Characteristics Survey**
  - Student characteristics (e.g., mobility rate)
  - School climate (e.g., total number of ODRs)
  - Staff and program resources (e.g., number of FTEs)

- **NCES Common Core of Data (CCD)**
  - Extracted data describing participating schools and districts (e.g., enrollment, teacher/student ratio)
Implementation measures

- **Fidelity**
  - Integrity of program (monitored three times throughout intervention for each participant)

- **Social validity (teacher’s perspective)**
  - Acceptability—General support for intervention
  - Positive effects—for participating student(s) and classroom

- **Alliance**
  - Strength of the relationship between coach and teacher
Study timeline

- **Screening:** SSBD
- **Baseline:** WJIII, ORF, AET, SSRS, Student Record Survey, Teacher Survey, CARS, School Survey
- **Posttest:** WJIII, ORF, AET, SSRS, Satisfaction (parent), Social Validity, Alliance
- **Follow-up:** WJIII, ORF, AET, SSRS, Student Record Survey, Teacher Survey, CARS, School Survey
Data collection processes

- Each study location has:
  - Site Coordinator
  - Research Assistants to collect the data

- All procedures and data collection forms are standardized across sites

- ORI provides technical assistance on First Step
  - “Off the shelf” approach—participants receive support when requested as provided in typical implementation

- SRI provides a web-based data collection and scheduling system
Web-based tracking system
Web-based tracking system

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## Web-based tracking system

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Web-based tracking system

### San Jose (3)

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Challenges

- Managing local research teams at study sites
  - Hiring, supporting, and supervising Site Coordinators and Research Assistants remotely
  - Coordination and communication between multiple sites
- Motivation to implement First Step program
  - Value of “free” program versus district investment
- Sustainability
  - Goal to build capacity to implement First Step after grant concludes
  - District/school staff for behavior coaches
Next steps

- 2007-08 school year
  - Starting year 2 in two sites (20 schools participating)
  - Starting year 1 in three remaining sites

- To date, about 100 children participating
  - Preliminary baseline data show no differences between intervention and comparison groups on key baseline data (e.g., WJIII, ORF, AET)

- Data collection concludes in 2010-2011 school year