The Role of Fidelity and Dosage in the Implementation of Evidence-Based Strategies in a Special Education Setting

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Project Goal

Goal was to increase the use of evidence-based strategies by special education teachers by using a collaborative approach.

Project Overview

- Work with Special Education Teachers to Interpret Evidence
- Assist in Writing Guides
- Teachers Implement Guides in Classrooms
- Measure Outcomes in Special Ed Students Over an 18-Month Period

Effective Strategies Guides

Effective Strategies Guides (ESGs) covered four topics:

- Reading Strategies: Present levels of functioning, Systematizing information – formative/summative assessments, Accommodations/modifications, CRISS (Creating Independence through Student-owned Strategies)
- Parent Involvement: Involving parents, families, caregivers as equal decision makers in the education of their children, Direct involvement with learning process, Volunteer activities in school or at home

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Formative Assessment

- Providing Academic Feedback
- Information provided to students, parents, and teachers about progress toward academic and behavioral goals
- Formal & informal
- Charts, graphs, checklists, portfolios

Positive Behavior Support

- A proactive approach to address challenging behavior in the classroom, in the school, at home, and in the community
- Seeks to prevent challenging behaviors by implementing positive behavior supports

The Schools Involved

- Middle school
  1249 students grades 6 to 8
- High School
  1400 students grades 9 to 12

Participants

- 87 Students Participated in Outcome Investigation
  - 57 SLD (65.5%)
  - 13 ED (15.0%)
  - 17 EMH (19.5%)
  - 64.4% Male, 66.7% White, 14.6 Average Age
- 14 Teachers Participated in Implementing Guides
  - 9 Middle School
  - 5 High School

Research Results

Five outcome areas captured over 1½ school years for 87 students

1) Attendance
2) Discipline Referrals (office referrals, in-school and out of school referrals)
3) Academic Achievement – Reading
4) Academic Achievement – Math
5) Time in general education – level of inclusion
For students who have ED: Reduced rates of office referrals and suspensions to the level of students with SLD and EMR which were very low.

**Research Results: Suspensions**

![Graph showing average number of in school suspensions](https://via.placeholder.com/150)

- EH/SED
- SLD
- EMH

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>2</td>
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</tbody>
</table>

For all students, no significant change in math achievement or attendance.

**Research Results**

![Graph showing WRAT Reading Score](https://via.placeholder.com/150)

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>75.1</td>
<td>77.8</td>
</tr>
<tr>
<td>76</td>
<td>76.4</td>
<td></td>
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</tbody>
</table>

All students increased their levels of reading achievement.

**Research Results: Reading**

![Graph showing percent of day in special ed](https://via.placeholder.com/150)

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<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
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</thead>
<tbody>
<tr>
<td>63%</td>
<td>61%</td>
<td>49%</td>
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All students decreased their time in special education settings and increased their time in general education settings.

**Research Results: Schedule**

![Graph showing average level of implementation](https://via.placeholder.com/150)

- PBS: 62%
- Reading: 55%
- Par Inv: 43%
- For Eval: 43%

Project schools average across all four = 61%
Comparison schools average across all four = 39%

**Fidelity Measure**

Developed an observational checklist to measure level of implementation (fidelity) of the four guides.

- Determined behaviors that were critical in each manual
- Conducted validity and reliability studies
- Resulting fidelity checklist for each area could range in score from 0 (no strategies used), to 10 (all strategies used)
Average Level of Implementation by Middle School Teachers

<table>
<thead>
<tr>
<th>PBS</th>
<th>Reading</th>
<th>Par Inv</th>
<th>Form Eval</th>
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<tbody>
<tr>
<td>40%</td>
<td>51%</td>
<td>66%</td>
<td>64%</td>
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</table>

Project schools average across all four = 66%  
Comparison schools average across all four = 48%

Dosage Formula

For each student:

\[ \text{Dosage Score} = \left(\% \text{ of day with Teacher A}\right) \times \left(\text{Teacher A TFS}\right) + \left(\% \text{ of day with Teacher B}\right) \times \left(\text{Teacher B TFS}\right) + \left(\% \text{ of day with Teacher C}\right) \times \left(\text{Teacher C TFS}\right) \]

Individual teachers ranged from 13.0 to 33.0 on their Total Fidelity Score (possible 40; \(M=24.4\))

Exposure Example

Students spent between 0% and 75% of their day with the teachers in the study (M=42%)

This student spends 42% of his day with teachers in the study.
### Results of Correlations of Outcomes with Dosage

Higher dosage scores related to:
- Improved math scores for students in the EMH and ED categories (EMH, r=.455; ED, r=.394)
- Fewer absences for students in the EMH category (r=.439)
- Fewer absences for all students at the high school (r=.349)
- Fewer discipline referrals for all students at the high school (r=.237)

### Conclusions

- **Fidelity and Dosage** – Critical for understanding the results of the intervention
- **Measuring dosage** is time consuming and a challenge