The Daily Report Card: Establishing Expectations for Change

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Map

- Disruptive Behavior Disorders
- Research on the Daily Report Card and Limitations
- Current Study
  - Method
  - Goal 1 = Response to DRC over time
  - Goal 2 = Incremental benefits of the DRC
Disruptive Classroom Behavior

- DBDs occur in 8 to 12% of elementary school students (Kamphaus, et al., 1997)

- Stressful for teachers (Greene et al., 2002; Sterling-Turner et al., 2001)

- Teacher burnout (e.g., Chang, 1999)

- Common reason for referral (Keenan & Wakschlag, 2002; Frick et al., 1993)
Academic Outcomes

• Barriers to classroom success (e.g., Abikoff et al., 2002; Atkins et al., 1985)

• Negative long term academic outcome (Barkley et al., 2008)

• Costly to educate (Robb et al., 2011)
Evidence Based Interventions

- Potential to
  - Reduce teacher stress
  - Decrease disruptive behavior
  - Improve outcomes

- Majority of research is with ADHD, but results have broader implications

<table>
<thead>
<tr>
<th>Goal</th>
<th>Tracking</th>
<th>Goal Met?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turns in homework on time</td>
<td></td>
<td>😞 ☹ NA</td>
</tr>
<tr>
<td>Completes math seatwork with 70% correct</td>
<td></td>
<td>😊 ☹ NA</td>
</tr>
</tbody>
</table>

Teacher’s Initials: _______________  Additional Comments: ________________________________

Reward received: _______________  Parent signature: _______________
Daily Report Card

- **Acceptable** to teachers (e.g., Girio & Owens, 2009)

- **Feasible** under typical school conditions (e.g., Fabiano et al., 2010)

- **Versatile**
  - Data collected daily or weekly (Chafouleas et al., 2002)
  - Amenable to different the contingencies
  - Pre-referral intervention and progress monitoring

- **Effective** in modifying both academic and behavioral problems (Vannest et al., 2010)
• Significant improvement in child behavior

  ○ Group designs as single intervention (e.g., Fabiano et al., 2010)

  ○ As a component in an intervention package (e.g., Owens et al., 2008, MTA Cooperative Group, 1999)
Research

- **Other Outcomes**
  - Improvement in academic productivity and academic skills (Murray et al., 2008)
  - Teacher rated improvement on Individualized Education Plan (IEP) goals (Fabiano et al., 2010)

- **Meta-analysis across 17 single-subject A-B design studies**
  - Average IRD effect size was .61, with a range of -.15 to .97 (Vannest et al., 2010)
Limitations of Current Research

- Short, single-subject designs
- Analog conditions
- Conditions heavily influenced by researcher support
- Small samples
- Special education students
- Little data to guide teachers’ practical decisions
Remaining Questions

- What percentage of children respond positively to this intervention?

- Are there incremental benefits with each month of intervention?

- When should a teacher discontinue a DRC?
Incremental Benefits of Intervention

- Aggressive and disruptive boys who participated in a cognitive behavioral anger coping program
  - Greater decreases in off task and inattentive behavior with more sessions (Lochman, 1985)

- High school students with ADHD who received an organization intervention
  - Majority (70%) mastered at 9 weeks, but 30% mastered at 14 to 21 weeks (Sadler et al., 2011)
Goals of the Current Study

1. What is the response to the DRC over time?
2. Are there incremental improvements (i.e., dosage effect) when a DRC is used over time?

- Inform teacher expectations
- Practical decision-making
  - How long the DRC should be continued
  - Whether a DRC should be discontinued based on the child’s initial response
- Enrolled in Y.E.S.S. Program between 2002 and 2009 (see Owens et al., 2008 and Owens et al., 2011)
  - Grades K-5
  - Demonstrated disruptive behavior problems in the classroom (e.g., inattention, hyperactivity/impulsivity, defiance, and/or aggression)

Children enrolled in Y.E.S.S. (n = 147)

- Excluded for insufficient length of implementation (n = 25)
- Excluded for < 50% of recorded daily data (n = 56)

Goal 1 Analysis (n = 66)

* No differences from parent sample
Participants \((n=66)\)

- 7 schools across Southeastern Ohio
  - Student body size (200-400 students)
  - <5% minority students
  - 40-65% qualify for free/reduced lunch
  - 15-20% qualify for special education status

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>58</td>
<td>87.90%</td>
</tr>
<tr>
<td>Medicated at referral</td>
<td>20</td>
<td>30.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>7.84</td>
<td>1.47</td>
</tr>
</tbody>
</table>
Diagnosis status was determined using:

- Parent and teacher **DBD Rating Scale** (Pelham et al., 1992)
- **Impairment Rating Scale** (Fabiano et al., 2006)
- **Disruptive Behavior Disorders Structured Parent Interview** (Pelham, 2002) or **Children’s Interview for Psychiatric Syndromes- Parent Version** (P-ChIPS; Weller et al., 1999)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>n</th>
<th>% of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD (Co-occurring ODD or CD)</td>
<td>50 (33)</td>
<td>75.8% (50%)</td>
</tr>
<tr>
<td>ODD or CD Only</td>
<td>6</td>
<td>9.1%</td>
</tr>
<tr>
<td>DBD-NOS</td>
<td>10</td>
<td>15.2%</td>
</tr>
</tbody>
</table>
Procedures

- Program facilitators
  - Graduate students
  - District-employed school counselors and social workers
- Teachers received bi-weekly, collaborative consultation
- Parents were offered behaviorally-based parenting sessions
- Services were available from fall through the end of the school year.
DRC: Implementation

1. Select the behaviors for improvement
   - 2 to 4 target behaviors
   - Dangerous
   - Most frequent/stressful

2. Define the target behaviors
   - Objective, measurable and specific
   - “What does the child do that makes you describe him that way?”
   - Phrase in the positive

Pelham, 2002
# 3. Track Pre-Intervention Behavior

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Arguments with teacher</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. Disruptions during transitions</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
4. Determine Criterion for Success

- More success than failure
- Child must succeed 3 out of 5 days each week
- Shape behavior into “typical” range
## Behavior

<table>
<thead>
<tr>
<th></th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Arguments</strong></td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>with teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

15/5 = 3

<table>
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<tr>
<th></th>
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<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
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</thead>
<tbody>
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<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

\[
\frac{15}{5} = 3
\]
5. Create the DRC

<table>
<thead>
<tr>
<th>Jordan’s Daily Report Card</th>
<th># of Arguments</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Respects Ms. Allen with 3 or fewer arguments</td>
<td></td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>2. Works quietly with 3 or fewer disruptions</td>
<td></td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>3. Completes 25% of class work</td>
<td></td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
DRC: Step by Step

6. Explain DRC to the child

7. Establish home-base rewards
   - Child input
   - Natural
Arguments with Teacher

Days
Number of Arguments

Arguments
Criterion

Arguments
Criterion

Days
Number of Arguments

Arguments
Criterion
Measures

<table>
<thead>
<tr>
<th>1. Respects Ms. Allen with 3 or fewer arguments</th>
<th># of Arguments</th>
<th>YES</th>
<th>NO</th>
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</table>

- Highly correlated with scores on ADHD rating scales (Pelham et al., 2005)
- Sensitive to change in the expected direction (e.g., Pelham et al., 2001)

- Academic targets were not included
**Standardization and Coding**

- Daily frequency data were standardized for each target behavior for each child.

**Behavior Type**

<table>
<thead>
<tr>
<th>Behavior Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interruptions</td>
<td>28%</td>
</tr>
<tr>
<td>Out of Seat</td>
<td>14%</td>
</tr>
<tr>
<td>Touching Others</td>
<td>6%</td>
</tr>
<tr>
<td>Prompts for On-Task</td>
<td>5%</td>
</tr>
<tr>
<td>Rule Violations</td>
<td>13%</td>
</tr>
<tr>
<td>Noncompliance</td>
<td>23%</td>
</tr>
<tr>
<td>Disrespect</td>
<td>2%</td>
</tr>
<tr>
<td>Temper Tantrums</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
</tr>
</tbody>
</table>
Goal 1

Response to DRC over time

Analysis

- Growth mixture modeling was used to conduct a latent class analysis (Wang & Bodner, 2007; Ram & Grimm, 2009).
- Intercept and slope indices served as dependent measures
<table>
<thead>
<tr>
<th>Summary of Fit Indicators</th>
<th>1 Class Model</th>
<th>2 Class Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akaike Information Criteria</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Bayesian Information Criteria</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Sample-Size Adjusted BIC</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>LMR LRT</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Entropy</td>
<td></td>
<td>✓</td>
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## Analysis 1

<table>
<thead>
<tr>
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<th>Class 1</th>
<th>Class 2</th>
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<tbody>
<tr>
<td><strong># of Targets</strong></td>
<td>108</td>
<td>20</td>
</tr>
<tr>
<td><strong>Intercept</strong></td>
<td>0.46</td>
<td>-0.37</td>
</tr>
<tr>
<td></td>
<td>($SE = 0.05, p &lt; 0.01$)</td>
<td>($SE = 0.12, p &lt; 0.01$)</td>
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<tr>
<td><strong>Slope Means</strong></td>
<td>-0.04</td>
<td>0.04</td>
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<td><strong>Improving</strong></td>
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<td>((SE = 0.00, p &lt; 0.01))</td>
<td>((SE = 0.01, p &lt; 0.01))</td>
</tr>
<tr>
<td><strong>Trajectory</strong></td>
<td>Improving</td>
<td>Worsening</td>
</tr>
</tbody>
</table>
Improvers (108 Targets)

- $n = 48$ (72%) Targets in Class 1
- $n = 13$ (20%) Targets in both Classes

Decliners (20 Targets)

- $n = 5$ (8%) Targets in Class 2
Other Differences Between Improvers and Decliners?

- Chi-square tests, t-tests, and qualitative visual inspection analyses
- **No differences** regardless of child gender, age, special education status, medication use, IQ, severity of ADHD symptoms, type of and target behavior category

<table>
<thead>
<tr>
<th>More Likely Improvers</th>
<th>More Likely Decliners</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-3rd Grade</td>
<td>4th and 5th Grade</td>
</tr>
<tr>
<td>Never Repeated a Grade</td>
<td>Repeated a Grade</td>
</tr>
<tr>
<td>Rewards in 1 Location</td>
<td>Combined Home and School Rewards</td>
</tr>
</tbody>
</table>
Goal 1 Summary

- Majority of children show a positive response across all targets
- 55% of the sample could not be included due to low adherence
- There is a class of targets that showed a lack of response
Map 2

- Utilize two effect size indices to examine student target behavior response across a four month period
  - Examine differential patterns of response between classes of responders
  - Incremental and cumulative

- Present suggestions for future directions
Data Selection

Children enrolled in Y.E.S.S. \((n = 147)\)

- Excluded for insufficient length of implementation \((n = 25)\)
- Excluded for < 50% of recorded daily data \((n = 56)\)

Latent Class Analysis \((n = 66)\)

- Excluded for no baseline data \((n = 17)\)

Effect Size Analysis \((n = 49)\)
Standard Mean Difference

Standard Mean Difference—

\[(7.0 - 4.8) = .92\]

2.4
Percentage Exceeding the Median—

\[
\frac{8}{10} = 80\% 
\]
## Pros/Cons

<table>
<thead>
<tr>
<th></th>
<th>SMD</th>
<th>PEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handles Extreme Values</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Standard Guidelines</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Type of Info</td>
<td>Magnitude</td>
<td>Consistency</td>
</tr>
</tbody>
</table>

**SMD** and **PEM** are compared based on their ability to handle extreme values, standard guidelines, and the type of information they provide.
SMD Cumulative Effect Size by Total Sample

Incremental
Cumulative

$\text{n} = 49$

Excluded $\text{n} = 98$
SMD Incremental Effect Size by LCA Class

* Significant difference between Class 1 and Class 2, $p < .05$. 
SMD Cumulative Effect Size by LCA Class

* Significant difference between Class 1 and Class 2, $p < .05$. 

- **Improvers**
  - Baseline: 0.84
  - Month 1: 0.44
  - Month 2*: 0.18
  - Month 3*: -0.15
  - Month 4*: -0.36

- **Decliners**
  - Baseline: 0
  - Month 1: 0
  - Month 2*: 0
  - Month 3*: 0
  - Month 4*: 0
PEM Incremental Effect Size by Total Sample and by LCA Class

% days improved

<table>
<thead>
<tr>
<th>Time</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>60</td>
<td>37</td>
<td>39</td>
<td>44</td>
</tr>
</tbody>
</table>

Improvers
Decliners

% days improved

<table>
<thead>
<tr>
<th>Time</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
</tr>
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<tbody>
<tr>
<td>Improvers</td>
<td>62</td>
<td>46</td>
<td>39</td>
<td>47</td>
</tr>
<tr>
<td>Decliners</td>
<td>39</td>
<td>24</td>
<td>38</td>
<td>30</td>
</tr>
</tbody>
</table>
PEM Cumulative Effect Size by Total Sample

% Days Improved

Total Sample

Time

% Days Improved

Improvers

Decliners

Baseline  Month 1  Month 2  Month 3  Month 4

Baseline  Month 1  Month 2  Month 3*  Month 4*

0 60 67 70 72

0 46 45 37 35

0 62 70 76 78
Behavior Frequency for Improvers

- **Interruptions**: Month 1 - 8.7, Month 4 - 3.59
- **Touching Others**: Month 1 - 4.31, Month 4 - 0.85
- **Out of Seat**: Month 1 - 11.06, Month 4 - 5.63
Summary

- What percentage of children respond positively to this intervention?
  - Most children have all targets improve
- Are there incremental benefits with each month of intervention?
  - Largest improvement month 1, incremental small gains in month 2 and 4.
- When should a teacher discontinue a DRC?
When should a teacher discontinue a DRC?

- Data might say month 2

- HOWEVER, check implementation

- Find effect sizes that indicate “honeymooners?”
Limitations

- Over 50% of child data excluded due to poor implementation or discontinuation before 4 months
- Implementation quality not assessed
- Homogenous participant sample with regard to race and gender
- Only behavioral targets included in analysis
Future Directions

- Examine potential avenues to increase teacher engagement and improve implementation
  - Technology?
  - Practice Supports
- Connect DRC target behavior improvement to academic outcomes and subjective ratings
- Develop evidence-based guidelines for DRC implementation and use
Selected Resources

- [www.oucirs.org/resources](http://www.oucirs.org/resources)
- [http://smhp.psych.ucla.edu/](http://smhp.psych.ucla.edu/)
- [www.interventioncentral.org](http://www.interventioncentral.org)
- [www.pbis.org](http://www.pbis.org)
- [www.yessprogram.org](http://www.yessprogram.org)
  - Click on links and resources
Contact Information

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AZ301009@OHIO.EDU