USING DIRECT BEHAVIOR RATING IN SELF-MONITORING TO IMPROVE MIDDLE SCHOOL BEHAVIOR

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Advance Organizer

- Background Literature
  - Evidence-Based Practices
  - Group Contingency
  - Self-Management
  - Direct Behavior Rating (DBR)
- Purpose of Current Study
- Method
- Results
- Discussion
Evidence-Based Practice

- EBPs in behavioral domains often include focus on:

  Classroom Practices → Positive student behavior → Academic Learning

- EBPs for classroom behavior management are often
  - *skill-based* - help students gain the skills needed to perform the appropriate behavior
  - *reinforcement-based* - help motivate students to perform the appropriate behavior

(Epstein, Atkins, Cullinan, Kutash, & Weaver, 2008)
Two strategies that have been established as evidence based were used in the intervention package evaluated in the current study.

- **Group Contingency** → reinforcement strategy
- **Self-Management** → skill-building strategy
Group Contingency Defined

- Reinforcement contingent on reaching predetermined level of performance

- Interdependent
  - All students within a group access reinforcers contingent on collective behavior (e.g., accruing points toward a combined total).

(Litow & Pomroy, 1975)
Interventions with entire groups vs. interventions with individual students

Resource efficiency

- If substantial amount of students require intervention supports, allocate resources at group level
- May be preferable over implementing multiple (and sometimes competing) individual intervention support plans
Self-Management Defined

- Attempt to shift locus of control to the student
  - e.g., Personal goal setting, Self-monitoring, Self-evaluation/recording, Self-reinforcement, Self-charting

- Consensus?
  - Behavior is defined
  - Behavior is observed and recorded by the student
    - Self-monitoring
    - Often, external prompt (auditory or visual cue) used to signal observation and recording periods

(Briesch & Chafouleas, 2009; Dalton, Martella, & Marchand-Martella, 1999)
Self-Management Defined

- Other strategies include: self-evaluation, self-charting, and goal setting
  - Similar to purposes of formative assessment
    - e.g., ongoing streams of data are collected and recorded in a way that can be evaluated over time
  - Direct observation commonly used for formative assessment
    - Issues surrounding feasibility of repeated use:
      - Total time to complete multiple observations
      - High training demands
  - So what may be a good formative assessment method for use in self-management?

(Chafouleas, Riley-Tillman, & Sugai, 2007; Hintze & Matthews, 2004)
Direct Behavior Rating (DBR) as a Self-Management Tool

- Behavioral assessment method that combines the
  - Efficiency of behavior rating scales (e.g., simple and quick to complete)
  - Repeatability of systematic direct observation (e.g., for use in formative assessment)
- It is flexible (e.g., can be used for assessment, intervention, and communication purposes)
- Is also defensible given increasing evidence of technical adequacy for some DBR formats

(Chafouleas, Riley-Tillman, & Christ, 2009; www.directbehaviorratings.org)
Example: Direct Behavior Rating – Single Item Scale (DBR-SIS)

- For example, here a teacher rated how well students were academically engaged during science lab using a DBR single-item scale (DBR-SIS; a scale format that has only one target rated per scale).

Interpretation: The student displayed academically engaged behavior during 80% of science lab today.
Evidence supports use of *self-management* and *group contingencies* as effective intervention options for increasing positive student behavior.

Potentially effective and efficient for both *skill-building instruction* and *reinforcement of positive behavior*.

More work needed to evaluate effects at the *classroom level* for *older students*.
Purpose of Current Study

- **Research Questions**
  - Will use of the intervention package increase appropriate student behaviors at class-wide level?
  - Will DBR-SIS data completed by teacher raters correspond to systematic direct observation (SDO) conducted by trained external observers?
Participants and Setting

- **Participants**
  - Two 8th grade teachers
    - Ms. S – Science Periods 1 and 5
    - Ms. B – Social Studies Period 3
  - Special education coordinator

- **Setting**
  - Suburban public middle school in the Northeast
Materials

- Intervention implementation materials
  - DBR-SIS form used by students to record behavior (i.e., Academic Preparedness, Academic Engagement)
  - Team Tally Sheet
  - Team Graph
- Systematic Direct Observation Recording Form
- Treatment Integrity Checklist
- Weekly Check-In Meeting Protocol
- Usage Rating Profile – Intervention

Materials available for download at www.directbehaviorratings.org
Design

- Class-wide intervention
  - Multiple baseline single-case design across three 8th grade classrooms
Procedures

- Baseline Phase
  - Students were trained on how to self-monitor using the DBR-SIS form with 0-10 point scales (0=Not at all, 5=Some, 10=Totally) for each of the following behavioral goals:
    - Academic Engagement
    - Academic Preparedness
    - Homework Completion
  - Throughout the baseline phase, students self-rated their behavior and teachers checked for accuracy.
Daily Self-Monitoring Sheet

Student's name: ___________________________  Day: M T W Th F  Date:___________

Directions: Place a mark along the line that best represents the degree to which you achieved the following:

<table>
<thead>
<tr>
<th>How well was I prepared for class?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples: Seated when bell rang, immediately began</td>
</tr>
<tr>
<td>Schema Activators, instructional materials open, covered textbook/pencil/paper ready, eye contact with teacher when lesson began</td>
</tr>
<tr>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>Not at all  Some  Totally</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>How engaged was I during class activities?</th>
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<tbody>
<tr>
<td>Examples: Writing, raising hand, answering a question, talking about a lesson, listening to the teacher, reading silently, taking notes appropriately, or looking at instructional materials</td>
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<th>How well did I do with homework completion?</th>
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<td>Examples: homework was written down in appropriate place, completed homework assignment (including any additional classwork), turned in assignment when requested</td>
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<td>0 1 2 3 4 5 6 7 8 9 10</td>
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Average Rating:

# of Bonus Pts Earned:

Total Points for Day: ____________

Any Comments?

Teacher Initials: ______________
Behaviors

- **How well was I prepared for class?**
  - **Examples:** Seated when bell rang, immediately began Schema Activators, instructional materials open, covered textbook/pen/pencil/paper ready, eye contact with teacher when lesson began.

- **How engaged was I during class activities?**
  - **Examples:** Writing, raising hand, answering a question, talking about a lesson, listening to the teacher, reading silently, taking notes appropriately, or looking at instructional materials.

- **How well did I do with homework completion?**
  - **Examples:** homework was written down in appropriate place, completed homework assignment (including any additional classwork), turned in assignment when requested.
**Student Training**

**Daily Self-Monitoring Sheet**

Student’s name: **Jackie**

Day: **M T W Th F**

Date: **2/14/11**

Directions: Place a mark along the line that best represents the degree to which you achieved the following:

**How well was I prepared for class?**

Examples: Seated when bell rang, immediately began
- Schema Activators, instructional materials open,
- covered textbook/pen/pencil/paper ready, eye contact
- with teacher when lesson began

**How engaged was I during class activities?**

Examples: Writing, raising hand, answering a question,
- talking about a lesson, listening to the teacher,
- reading silently, taking notes appropriately, or looking
- at instructional materials

**How well did I do with homework completion?**

Examples: homework was written down in appropriate
- place, completed homework assignment (including any
- additional classwork), turned in assignment when
- requested

Add All Points:
(Use teacher rating if different)

**# of Bonus Pts Earned:**
(1 pt for each match within 1 pt)

Any Comments?

Teacher Initials: ___________
How do I know if I am rating accurately?

- When rating, remember to think about your behavior across the entire period, not just at the beginning, middle, or end.
- Consider adding a “check” from another person, such as your teacher.
  - After you complete your ratings, your teacher can come around and circle her ratings to see how closely you match.
  - Remember, teacher ratings always determine “accuracy”!
How do I calculate the “Total Points” box?

- Add up the total number of points across each of the 3 behaviors (total of 30).
  - Remember, use the teacher rating as the “accurate” number of points.

- Bonus points can be earned if your rating falls within 1 point of the teacher rating.
  - Example: Teacher = 8, Student = 7 \(\rightarrow\) 1 Bonus Point
  - Teacher = 5, Student = 9 \(\rightarrow\) NO Bonus Point

- Add the bonus points to the sum of the points earned on the three scales, writing the answer in the TOTAL POINTS box.
### Daily Self-Monitoring Sheet

**Student's name:** Jackie

**Day:**

**Date:** 2/14/11

**Directions:** Place a mark along the line that best represents the degree to which you achieved the following:

**How well was I prepared for class?**

*Examples:* Seated when bell rang, immediately began
Schema Activators, instructional materials open, covered textbook/pen/pencil/paper ready, eye contact with teacher when lesson began

**How engaged was I during class activities?**

*Examples:* Writing, raising hand, answering a question, talking about a lesson, listening to the teacher, reading silently, taking notes appropriately, or looking at instructional materials

**How well did I do with homework completion?**

*Examples:* Homework was written down in appropriate place, completed homework assignment (including any additional classwork), turned in assignment when requested

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Add All Points:
(use teacher rating if different)

**# of Bonus Pts Earned:**
(1 pt for each match within 1 pt)

**Total Points for Day:**

**Any Comments?**

**Teacher Initials:** ____________
Student Training

Daily Self-Monitoring Sheet

Student's name: **Jackie**  
Day: [ ] M  [ ] T  [ ] W  [ ] Th  [ ] F  
Date: **2/14/11**

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</table>

Add All Points: 13

# of Bonus Pts Earned: 2

Total Points for Day: 15

Any Comments?  
**Great job paying attention- remember that pencil!**  
Teacher Initials: **SC**

Homework Hotline Number: 555-5555
Procedures (cont.)

- **Intervention Phase**
  - Another training session occurred to explain the group contingency intervention
  - Classes divided into 4-6 teams of 3-5 students each
  - Students continued to rate own behavior using DBR-SIS form, but could now earn rewards if their cumulative point total reached a pre-specified goal
Procedures (cont.)

- Intervention phase (cont.)
  - Points were recorded on Team Tally Sheet daily
  - Each team’s progress was tracked on Team Graphs posted in the classroom daily
  - At the beginning of class each day, teachers announced each team’s average from the previous day
  - At the end of each week, teams who met or exceeded the goal (e.g., 120 points) earned a reward based on the multi-level reward system
# Team Tally Sheet

**Teacher Name:** Chafouleas  
**Team Name:** Rockets

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date:</strong></td>
<td>2/23/09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Team Leader Name:</strong></td>
<td>Sally</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Points Earned for Each Student on Team:</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>25 - LS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33 - SB</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>16 - MM</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>20 - TJ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average Points Earned by Team:</strong></td>
<td>94/4 = 23.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Points Earned for the Week: (add average points row, Mon-Fri)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Were enough points earned for a team reward?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>
What are the rewards?

- Rewards got better for each **consecutive** week the goal was met:
  - **Level I**: candy bar or soda (e.g., team reaches at least 120 points).
  - **Level II**: Level I reward **plus** pizza lunch or $5 Dunkin Donuts gift card (e.g., team reaches 120 points over 2 weeks in a row).
  - **Level III**: Level I reward **plus** Level II or Level III $10 movie gift card (e.g., team reaches 120 points over 3 weeks in a row).
Dependent Variables

- Teachers’ DBR-SIS ratings of academic preparedness and academic engagement
  - DBR-SIS ratings of homework completion were excluded as homework was inconsistently assigned
- Systematic direct observation (SDO) was conducted by researchers once per week for 15 mins in each class to collect data on overall student engagement and off-task behavior.
Data Analysis

- Visual Analysis
- Effect Size
  - Comparison of means across phases
  - Standard Mean Difference
Results

- **Treatment Integrity**
  - Teachers earned performance feedback if adherence to the intervention steps <80% for two days/week.
  - Overall, teachers demonstrated moderate to high, but variable, levels of adherence to intervention steps.
  - Performance feedback increased adherence that maintained with some variability across Periods 5 and 1 for Ms. S, but not for Ms. B.

(see Sanetti, Chafouleas, Fallon, & Jaffery, 2010)
Results

- Visual Analysis of DBR-SIS and SDO data
  - Ms. S Period 5
  - Ms. B Period 3
  - Ms. S Period 1
Results: Academic Engagement

Figure 1. Teachers’ ratings on DBR-SIS form

Figure 2. Researcher’s observed data

Figure 3. Percentage of intervals students were observed engaged.

Figure 1. Class average of daily student engagement rating on DBR. Note that data were not collected on the following dates: 2/15/09 – 2/20/09: Winter Break, 3/2/09: Snow Day, 3/25/09 & 3/27/09: No class for state-wide testing; 4/20/09 – 4/24/09: Spring Break.
Results: Academic Preparedness

*Figure 3.* Daily class average of teachers’ ratings on DBR-SIS form.
**Results: Off-Task Behavior**

*Figure 4.* Percentage of intervals students were observed by researchers to be Off-Task.
## Results

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Intervention</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td><strong>Ms. S Period 5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBR Preparedness</td>
<td>7.8 (2.01)</td>
<td>7.6 (1.97)</td>
<td>8.8 (1.28)</td>
</tr>
<tr>
<td>DBR Engagement</td>
<td>6.4 (2.80)</td>
<td>6.8 (2.31)</td>
<td>8.0 (1.72)</td>
</tr>
<tr>
<td>SDO Engagement</td>
<td>36.2 (12.51)</td>
<td>79.0 (5.08)</td>
<td>83.1 (8.34)</td>
</tr>
<tr>
<td>SDO Off-Task</td>
<td>70.4 (7.60)</td>
<td>30.7 (6.30)</td>
<td>21.7 (8.16)</td>
</tr>
<tr>
<td><strong>Ms. B Period 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBR Preparedness</td>
<td>9.6 (1.05)</td>
<td>9.9 (0.47)</td>
<td>9.9 (0.24)</td>
</tr>
<tr>
<td>DBR Engagement</td>
<td>8.6 (1.36)</td>
<td>9.3 (0.99)</td>
<td>9.6 (0.75)</td>
</tr>
<tr>
<td>SDO Engagement</td>
<td>75.9 (5.68)</td>
<td>86.7 (2.36)</td>
<td>86.7 (5.87)</td>
</tr>
<tr>
<td>SDO Off-Task</td>
<td>34.7 (4.58)</td>
<td>19.2 (5.53)</td>
<td>16.7 (6.41)</td>
</tr>
<tr>
<td><strong>Ms. S Period 1</strong></td>
<td></td>
<td></td>
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</tr>
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<td>DBR Preparedness</td>
<td>8.1 (1.90)</td>
<td>8.3 (1.36)</td>
<td>8.9 (0.91)</td>
</tr>
<tr>
<td>DBR Engagement</td>
<td>7.4 (2.02)</td>
<td>7.8 (1.59)</td>
<td>8.1 (1.35)</td>
</tr>
<tr>
<td>SDO Engagement</td>
<td>57.9 (7.75)</td>
<td>71.0 (13.86)</td>
<td>80.6 (14.94)</td>
</tr>
<tr>
<td>SDO Off-Task</td>
<td>47.5 (5.00)</td>
<td>34.6 (20.78)</td>
<td>28.9 (14.18)</td>
</tr>
</tbody>
</table>
Discussion

- **Research Question 1:** Will use of the intervention package increase appropriate student behaviors at class-wide level?

  - Overall, intervention package moderately effective
    - Improved student behavior at class-wide level
    - Students responded positively with most teams reaching and maintaining weekly goals
    - In general, teachers found the intervention to be highly acceptable, easy to understand, and easy to implement
Discussion (cont.)

- **Research Question 2**: Will DBR-SIS data completed by teacher raters correspond to systematic direct observation (SDO) by trained external observers?
  - Overall correspondence, however SDO data may indicate more substantial improvement
    - Over-rating of behavior at baseline when using DBR-SIS?
  - Overall decisions regarding intervention effectiveness may be similar regardless of data source
    - Need balance between precision and efficiency

(Riley-Tillman, Christ, Chafouleas, Boice-Mallach, & Briesch, 2010)
Discussion (cont.)

- Intervention Usability according to Usage Rating Profile-Intervention (URP-I) completed by teachers
  - Acceptability
  - Understanding
  - Feasibility
  - Systems Support
Limitations

- Teachers required immediate intervention, thus...
  - limited amount of baseline data points in the first class
  - baseline phase included self-monitoring
- Intervention reward system was somewhat complex and entirely researcher-funded
- Researcher involvement
- Small sample size → low generalizability
- Practical setting with teacher implementers → low control over factors influencing internal validity
Future Directions

- Improve feasibility for implementation in school systems
- Evaluate impact of increased student responsibility
- Further evaluation of highly efficient alternative methods of data collection
- Component analysis may facilitate understanding of which, when, and with whom various components in an intervention package might be selected
Recommendations

- Define problem behaviors and conditions prompting and reinforcing behaviors
- Hypothesize need to modify classroom learning environment to
  - decrease problem behavior
  - Teach and reinforce new skills to increase appropriate behavior and facilitate positive classroom climate
- Consider level of intervention focus (e.g., class-wide, individual) and intensity of supports (e.g., universal Tier I, targeted Tier II, intensive Tier III)
- Use same problem-solving model to create conceptually relevant interventions

( Epstein, Atkins, Cullinan, Kutash, and Weaver, 2008)
Questions?

All materials can be accessed at
www.directbehaviorratings.org