I-Connect: A Self-monitoring Intervention to Support Secondary Students Utilizing a Mobile Application

Dr. Howard Wills, University of Kansas
HPWILLS@KU.EDU
A focus on self-regulation/self-management

Self-Determination
- Choice-Making
- Decision-Making
- Problem-Solving
- Self-Regulation/Self-Management
- Self-Advocacy
- Self-Efficacy
- Self-Knowledge

Goal-Setting
- Self-Instruction
- Self-Monitoring
- Self-Evaluation
- Strategy instruction

What strategies do you use in your own life? How do you help your students self-manage?
Self-Management

2013-04-08 07:54:19  Acquisition Interventions: The student needs help learning the appropriate behavior; Proficiency (gets something) Interventions: The child gains something (e.g. attention) when they engage in the problem behavior.

Although there is a wealth of existing behavioral interventions, many rely solely on teacher implementation, require significant attention, and may be difficult to apply consistently (Briesch & Chafooleas, 2009). In contrast, self-management interventions make students responsible for tracking their own behavior. At the core of self-management, is self-monitoring where students are provide with the definitions of target behaviors and prompted to record their performance during instruction. By becoming aware of their own behavior, students are given the opportunity to recruit naturally occurring reinforcers. Several components are often used in addition to self-monitoring including goal setting, self-charting, and self-evaluation paired with reinforcement (Briesch & Chafooleas, 2009).

- Full Intervention Brief: **Self-Management**
  Comments (0)

« Video Modeling and Video Self-Modeling for Students with Autism  
Spectrum Disorders
Choice Making »

Comment Closed
What is self-monitoring?

A research-based intervention demonstrating positive effects across age, gender, disability, and setting.
Example of “in the moment” self-monitoring:

Are you in your seat right now?

<table>
<thead>
<tr>
<th>Interval</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2:00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3:00</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4:00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5:00</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>6:00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7:00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>8:00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Total 80% 20%

Goal: During math class, Juan will be in his seat for 80% of intervals each day for a week.
Example of “retrospective” self-monitoring:

During Math Rate How Well Stayed in your seat...
The Role of Technology

- Prompting devices:
  - helpful for cueing, but not collecting data
We use technology to self-monitor so many other things...why not behavior in schools?
What can we learn from the medical field?

Technology-based self-recording interventions, involving making an observation and recording a behavior, have been used in applications focusing on…
Weight Loss

Turner-McGrievy, Beets, Moore, Kaczynski, Barr-Anderson, Tate, 2013
Diabetes Management

Levine, Burns, Whittle, Fleming, Knudson, Flax, & Leventhal, 2016
Mental Health

Kauer, Reid, Crooke, Khor, Hearps, Jorm, & Patton, 2012
Physical Activity and Health Records

## BENEFITS

<table>
<thead>
<tr>
<th>Health Care Professionals</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-time patient care data</td>
<td>Real-time feedback</td>
</tr>
<tr>
<td>Another means of communicating...</td>
<td>Reminders</td>
</tr>
<tr>
<td>Data over time</td>
<td>Goal-tracking</td>
</tr>
<tr>
<td>Increased Patient Accountability</td>
<td>Accountable and Supported</td>
</tr>
</tbody>
</table>
WEARABLE DEVICES

• Real-time feedback
• Prompts to get up and move
• Upload activity data to the web and produce simple graphs and charts for users to monitor progress
• Connect! (Share and Join a Community)
Learning from the Medical and Health Fields

Piette (2007) Recommendations:

• “Look before you leap (but do not forget to leap)” (p. 2428).
• “One size does not fit all” (p. 2428).
• “Beware of ‘cool apps’ (applications)” (p. 2428).
• TBSM, “is most effective when it supports human contact” (p. 2428).
Emerging TBSM in Education

Office of Special Education and Rehabilitative Services

Award: H327S170001

www.asdonthego.ku.edu

www.iconnect.ku.edu
Some studies supporting the use of I-Connect


Carl

Rosenbloom, R., Wills, H. P., & Mason, R. A.
EVIDENCE OF THE TECHNOLOGY’S EFFECTIVENESS FOR TARGETED POPULATION

**I-Connect** as a single component intervention to improve academic on-task behavior in a general education Biology class for a high-school student with LD and another with ADHD. Both students responded to **I-Connect** with immediate improvements.
I-Connect was employed as an enhancement to school-based mentoring for a high-school student with a LD who was failing chemistry in an inclusive classroom. The intervention resulted in improvements in on-task behavior and assignment completion with improvements in class grades.
Technology-based Self-Monitoring (TBSM)

• Self-monitoring: self-recording the occurrence or non-occurrence of a behavior
  • Examples:
    On-task?
    Appropriate?
Self-Monitoring for High School Students With Disabilities: A Cross-Categorical Investigation of I-Connect

Lachelle L. Clemons, MSEd, Benjamin A. Mason, PhD, Linda Garrison-Kane, PhD, and Howard P. Wills, PhD

Abstract
Self-monitoring interventions are well supported within the empirical literature as improving for students with disabilities. However, studies implementing self-monitoring interventions are rarely conducted despite their potential to improve student academic and behavioral outcomes. An unobtrusive, self-monitoring application loaded on a handheld device, classroom engagement benefits were assessed in a withdrawal design for three high school students with different disabilities (autism, and intellectual disability) in varied instructional arrangements. Direct observation of intervention as effective in improving classroom engagement for all three students during intervention phases.

Keywords
self-management, classroom, intervention(s), adolescent, positive behavior support(s)

High school students with disabilities represent a critically underserved population for intervention research. Despite advances within school-wide positive behavior support (SWPBIS) literature (Bradshaw, Mitchell, & Leaf, 2010; Lewis & Sugai, 1999; Sugai & Horner, 2009), the majority of studies investigating universal and secondary behavioral interventions have been conducted within elementary classrooms. Structural characteristics common to high school settings may contribute to the lack of empirical research. First, high school teachers may feel unequipped to intervene, particularly for challenging behavior (Baker, 2005). Second, the number of classes, compartmentalization of departments, and administrative structures inherent to high schools may require adjustments to interventions and programs (Flannery, Sugai, & Anderson, 2009). Third, support provided to high self-directed behavior strategies to the desired way (Cooper, Heron, & Heward, 2007). Self-management interventions are often complex and encompass a large number of elements (Faintuzzo & Polite, 1990), self-monitoring is commonly incorporated element typical self-management interventions. Self-monitoring behavior strategy that consists of monitoring one's own behavior (Mace, Belfiori, & Bruder, 1991).

Several studies have shown self-academic performance in middle (e.g., reading comprehension; Kozminsky & Kozminsky, 2001), and math assignments (Cancio, Shimabukuro, Prater, Jenkins, & E

![Graph](https://example.com/graph.png)
<table>
<thead>
<tr>
<th>Authors</th>
<th>Students</th>
<th>Setting</th>
<th>Disability</th>
<th>Target Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wills &amp; Mason&lt;sup&gt;2013&lt;/sup&gt;</td>
<td>1 HS</td>
<td>Chemistry</td>
<td>SLD</td>
<td>Engagement</td>
</tr>
<tr>
<td>Wills et al&lt;sup&gt;2013&lt;/sup&gt;</td>
<td>1 HS</td>
<td>Algebra</td>
<td>EBD</td>
<td>Engagement</td>
</tr>
<tr>
<td>Wills &amp; Mason&lt;sup&gt;2014&lt;/sup&gt;</td>
<td>2 HS</td>
<td>Biology</td>
<td>SLD, ADHD</td>
<td>Engagement, Disruptives</td>
</tr>
<tr>
<td>Bunch-Crump&lt;sup&gt;2015&lt;/sup&gt;</td>
<td>1 ES</td>
<td>GE</td>
<td>At-risk</td>
<td>Engagement, Disruptives</td>
</tr>
<tr>
<td>Crutchfield et al&lt;sup&gt;2015&lt;/sup&gt;</td>
<td>2 MS</td>
<td>SC</td>
<td>ASD</td>
<td>Stereotypy</td>
</tr>
<tr>
<td>Rosenbloom et al&lt;sup&gt;2016&lt;/sup&gt;</td>
<td>1 ES</td>
<td>Math</td>
<td>ASD</td>
<td>Engagement</td>
</tr>
<tr>
<td>Beckman et al&lt;sup&gt;2016&lt;/sup&gt;</td>
<td>2 ES</td>
<td>SC</td>
<td>ASD</td>
<td>Engagement, Productivity</td>
</tr>
<tr>
<td>Clemons et al&lt;sup&gt;2015&lt;/sup&gt;</td>
<td>3 HS</td>
<td>Multiple</td>
<td>SLD, ASD, ID</td>
<td>Engagement</td>
</tr>
<tr>
<td>Rosenbloom&lt;sup&gt;2017&lt;/sup&gt;</td>
<td>3MS, 1HS</td>
<td>Multiple</td>
<td>ASD</td>
<td>Engagement, Productivity</td>
</tr>
</tbody>
</table>

Table 1. Studies Demonstrating the Effects of I-Connect
Note: ASD = Autism Spectrum Disorder; EBD= Emotional/Behavioral Disorder;
LOW OR NO TECH OPTIONS

Dr. Gail Fitzgerald
University of Missouri

Kids Tools and Strategy Tools
Future Directions, Next Steps

Contact Us to set up
Will Need (Wifi and Android.. until Late August)

• Human Interaction
  • Do not neglect, nor replace the human element of self-monitoring
    • Use of Data in Connecting with Others
Time for Questions

Howard Wills

- University of Kansas
- hpwills@ku.edu