How Biofeedback Video Games are Helping Children and Adolescents Build Automaticity for Managing and Controlling Emotions

Emily Stone, MSW, LICSW
Learning Objectives:

1. State what biofeedback technology is and how it works.
2. Explain what automaticity is and what the process for developing automaticity looks like.
3. Explain how automaticity and biofeedback technology can help clients who are struggling with emotional regulation.
Emily Stone, MSW, LICSW
Teaching Emotional Regulation
Cognitive Behavioral Therapy (CBT) Model

Do This All While Escalated!

1. Recognize
2. Label
3. Learn Tools
4. Use a Tool
5. Try Another Tool if Tool Fails
What is Biofeedback?
Biofeedback
Biofeedback Video Games
Biofeedback Video Games
Clinical Trials Related to Biofeedback Video Games
Clinical Trials

62% Child Outbursts
40% Oppositional Behavior
19% Parental Stress
<table>
<thead>
<tr>
<th>Trial</th>
<th>Participants</th>
<th>Design</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40 children, ages 10-18, Elevated anger</td>
<td>Open-label compared to treatment as usual</td>
<td>Boston Children’s Hospital</td>
</tr>
<tr>
<td>2</td>
<td>40 children, ages 10-18</td>
<td>Double-blinded randomized sham-controlled trial</td>
<td>Boston Children’s Hospital</td>
</tr>
<tr>
<td>3 (replication)</td>
<td>Elevated aggression and anger</td>
<td>Double-blinded randomized sham-controlled trial</td>
<td>Massachusetts General Hospital</td>
</tr>
<tr>
<td>4</td>
<td>8 children, ages 8-12 Referred by teachers</td>
<td>Open-label pre-post-comparison</td>
<td>Brookline (MA) and Montreal (QC) public schools</td>
</tr>
</tbody>
</table>
Automaticity
Automaticity
Developing Automaticity

Shen (2013)
Automaticity and Teaching Emotional Regulation

Recognize

Label

Learn

Tools

Use a Tool

Try Another Tool if Tool Fails

Body Senses Presence of Inner Cues

Increase in Heart Rate

Automatic Response to Use Tool
How Are We Changing Social Emotional Learning?

- Meeting kids where they are at
- Creating a fun and welcoming environment for kids to explore without judgment or criticism
- Giving kids autonomy and independence to build self-esteem and confidence
- Allowing kids to practice emotional regulation while they are dysregulated so they can use skills later in the real world
What symptoms are biofeedback video games beneficial for?

- Anger
- Opposition
- Anxiety
- ADHD
- Autism
Who are biofeedback video games beneficial for?
Success Stories

PARENT-COMPLETED IMPROVEMENT SURVEYS, 2018 & 2019

“Since the beginning of Mightier use, do you see overall improvement in emotional regulation?”

IMPROVEMENT RATE

M&DHS SINCE STARTING MIGHTIER

76.5% 78.6% 82.5%
1 2 3

n=1547
MIGHTIER™
by Neuromotion Labs

[Image of a child using an application on a tablet and a wristband]
Questions/ Contact Us:

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