The Mindful Classroom: Teaching Mindfulness Meditation to Promote Adolescent Self-Regulation

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Learning Objectives

- Describe the facets and importance of self-regulation
- Identify research findings demonstrating the ability of Mindfulness Meditation (MM) to promote self-regulation in adolescents
- Demonstrate a variety of MM practices
- Identify valid resources for implementing MM in schools
Successful Living

- What trait, according to research, is the most important for young people to have in order to live a healthy and successful life?
  A. Family Background
  B. SES
  C. Grit
  D. Resilience
  E. Self-control
According to Research........

- While we could make an argument for each trait, research has demonstrated that self-control is critical for success in life.

- “Self-control is probably the single most important trait to have for success in life. There have been hundreds and hundreds of studies showing that kids with strong self-control do better in school, have better relationships, are less likely to develop emotional problems, their less likely to get into trouble. People with poor self-control show the opposite pattern.”

  Laurence Steinberg, PhD ‘Age of Opportunity’

  https://www.youtube.com/watch?v=QMkjg2ojPmc
Self-Regulation: Definition

- The ability to flexibly activate, monitor, inhibit, persevere and/or adapt one’s behavior, attention, and cognitive strategies in response to direction from internal cues, environmental stimuli and feedback from others, in an attempt to attain personally relevant goals (Moilanen, 2007)

- In developmental psychology, self-regulation is defined as the ability to control thoughts, feelings, and behaviors (Posner & Rothbart, 2007)
Self-Regulation: Components

- Emotion Regulation
- Cognitive Control (Attention)
- Self-Regulation
Self-Regulation: Health and School

Health

- Self Regulation is an important factor that may help prevent young people from engaging in high risk behavior or help them avoid the consequences of risk behavior (Moilanen, 2007)

- Specifically, self-regulation has been associated with increased ability to control substance use and sexual behavior (Wills et al, 2002; Rafaelli & Crockett, 2003)

Academics

- Self-regulation plays a key role in learning and produces higher academic achievement according to a range of measures (Zimmerman, 2000a; Zimmerman, 200b)

- Students who lack self-regulation underperform academically, and are more likely to exhibit problem behavior in school (Wulfert et al, 2002)
A gradient of childhood self-control predicts health, wealth, and public safety

Terrie E. Moffitt1, 2, Louise Arseneault3, Daniel Belsky4, Nigel Dickson5, Robert J. Hancox6, Honia Lee Harrington6, Renate Houts7, Richie Poulton7, Brent W. Roberts8, Stephen Ross8, Malcolm R. Sears9,10, W. Murray Thomson9, and Avshalom Caspi3, 8, 11

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https://www.youtube.com/watch?v=KT9otL6pxKQ
Self-Regulation: The ACC

- The Anterior Cingulate Cortex (ACC) is a nexus of both information processing and regulation in the brain (Margulies et al, 2007)

- The ACC is at the center of the brain’s self-regulatory system, integrating inputs from diverse sources in order to regulate responses and guide behavior (Kelly et al, 2009)

- Functional connectivity between the ACC and other regions of the brain develops over time (Kelly et al, 2009)
Margulies et al, 2007; Kelly et al, 2009
What is (Mindfulness) Meditation?

“There are many types of meditation, but most have four elements in common: a quiet location with as few distractions as possible; a specific, comfortable posture (sitting, lying down, walking, or in other positions); a focus of attention (the present moment); and an open attitude (letting distractions come and go naturally without judging them).”

- National Center for Complementary and Integrative Health (NCCIH)

https://www.youtube.com/watch?v=QHILscdegL8
breathe in

PAY ATTENTION

breathe out
<table>
<thead>
<tr>
<th>Authors</th>
<th>Participants</th>
<th>Type/Design</th>
<th>Outcomes</th>
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</table>
| Bogels et al, 2008       | 14 youth with ADHD (14.4 yrs) | •Mindfulness Based Cognitive Therapy  
•Pre and post-test | •Self-report attention improved  
•Improvement on objective attention testing |
| Weijer-Bergsma et al, 2011 | 8 youth with ADHD (13.4 years) | •Mindfulness Meditation  
•Pre and post-test | •Post training adolescents’ externalizing, internalizing and attention problems reduced, and executive functioning improved on self-report  
•Improvements on computerized attention tests confirmed reported results |
| Zoogman et al, 2014      | Youth under 18 years of age  | •Meta-analysis of 20 Mindfulness Meditation studies | •Overall Effect size was statistically significant indicating mindfulness condition showed greater improvement on outcome measures than active control conditions.  
•For mindfulness and attention measures meditation programs demonstrated significant improvements |
## MM and Adolescents: Emotion Regulation Outcomes

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| Broderick & Metz, 2009   | Entire senior class of an all girls school (N=105 treatment group, N=17 control group, 17.4 yrs) | • Learning to Breathe Curriculum (Mindfulness)  
• Pre and post-test | • Experimental group significantly reduced their Difficulty in Emotion Regulation Scale (DERS) score  
• Significant reduction in negative affect according to Positive and Negative Affect Schedule (PANAS) |
| Metz et al, 2013         | • Two high schools in Philadelphia (N=129 treatment group, N=87 control group, 16.5 yrs) | • Learning to Breathe Curriculum (Mindfulness)  
• Pre and post-test with | • Mindfulness group significantly reduced DERS score  
• Program participants demonstrated an improvement in the overall self-regulation efficacy as measured by the Affective Self-Regulatory Efficacy Scale (ASRES) |
| Schonert-Reichl & Lawlor, 2010 | A total of 6 program classrooms (N=139 treatment group, N=107 control, 11.43 yrs) | • Mindfulness in Education Program  
• Pre and post-test | • Teachers in intervention rated students as significantly more attentive, emotionally regulated than did control teachers  
• Program group demonstrated a positive statistical trend for positive affect |
| Barnert et al, 2014      | Incarcerated males (N=29, 16.3 yrs)                                          | • 10-week meditation program and a 1-day meditation retreat  
• Pre-post test, mixed methods | • Post-treatment, all participants increased their self-regulation, specifically regulation of emotion  
• Qualitative interviews revealed a theme of increased self-discipline as a result of the intervention |
## MM and Adolescents: Neuro-imaging Studies

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<tbody>
<tr>
<td>Tang et al, 2010</td>
<td>45 American undergraduate students (22 experimental group, 23 control group, 20.58 yrs)</td>
<td>•IMBT 30 min/day 1 month vs. RT</td>
<td>• Fractional Anisotropy (FA) increases (largest) in the left anterior corona radiata (a key node of the self-regulation network in ACC) indicating white matter changes in this region due to IBMT</td>
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<tr>
<td></td>
<td></td>
<td>•RCT, Pre and Posttest</td>
<td></td>
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<td></td>
<td></td>
<td>•Used Diffusion Tensor Imaging (DTI)</td>
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<td>Tang et al, 2012</td>
<td>68 Chinese undergraduate students (34 experimental group, 34 control group, 20.52 yrs)</td>
<td>•IMBT 30 min/day 2 weeks vs. RT</td>
<td>• The previous study found that FA increased (anterior corona radiata) and involved simultaneous decreases of Axial Density and Radial Density (Tang et al 2010)</td>
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<tr>
<td></td>
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<td>•RCT, Pre and Posttest</td>
<td>•In the current study a significant decrease in AD was found in the corpus callosum, corona radiata, superior longitudinal fasciculus, posterior thalamic radiation, and sagittal stratum</td>
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<td>Xue et al, 2011</td>
<td>32 Chinese undergraduate students (15 experimental group, 17 control group, 21.44 yrs)</td>
<td>•IMBT 30 min/day 1 month vs. RT</td>
<td>•After 1 month of training, nodal efficiency showed a significant increase in left ACC after IBMT but not RT</td>
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<tr>
<td></td>
<td></td>
<td>•RCT, Pre and Posttest</td>
<td>•The left ACC had a greater nodal degree value after IBMT</td>
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<tr>
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<td>•Used Diffusion Tensor Imaging (DTI)</td>
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<tr>
<td>Tang et al, 2015</td>
<td>40 Chinese undergraduate students (20 experimental group, 20 control group, 22.75 yrs)</td>
<td>•IMBT 30 min/day 5 days vs. RT</td>
<td>•IBMT showed significantly better scores on PANAS</td>
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<td></td>
<td></td>
<td>•RCT, Pre and Posttest</td>
<td>•IBMT group had significantly more cerebral blood flow (CBF) to subgenual/adjacent ACC, MPFC, and insula</td>
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<td></td>
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<td>•fMRI and PANAS</td>
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White Matter Changes

Fig. 3. Demonstration of brain regions with significant FA increases after 11 h of IBMT. The demonstration map shows the significant FA increases in the left anterior corona radiata (green area), the left superior corona radiata (purple area), the genu of corpus callosum (blue area), and the body of corpus callosum (red area) after 11 h of IBMT, all $P < 0.05$.

Tang et al, 2010
So What?!?!

- Health Education, given its emphasis on promoting healthy decision-making and practicing health-enhancing behaviors (National Health Education Standards 5 and 7), could be an ideal context for MM practice in a school setting.

- Through helping students learn and practice MM in health education, we not only help them acquire self-regulation skills, but also the capacity to self-regulate.
Let’s Get Practical

- Teach students different types of MM
  - Movement and MM is a great place to start!
  - [https://www.youtube.com/watch?v=AYrUqlwE6n8](https://www.youtube.com/watch?v=AYrUqlwE6n8)

- Focused attention brain breaks!

- Create a MM unit
  - Allow students to create their own MM experience (see handout)
Resources

- **Apps:** Headspace and Calm
- **Books for Students:** ‘The Mindful Teen’ by Dzung X. Vo, MD
- **Books for Teachers:** Learning to BREATHE’ by Patricia Broderick, PhD, ‘Brainstorm’ by Dan Siegel, MD, and ‘Age of Opportunity’ by Laurence Steinberg, PhD
Self-regulation is an important trait for students to develop because:

A. It helps students avoid risks
B. Leads to better academic and career outcomes
C. Promotes healthy relationships
D. All of the above
E. None of the above
Post-Assessment 2

- MM includes all of the following components except:
  A. A quiet location
  B. An uncomfortable posture
  C. A focus of attention
  D. An open non-judgmental attitude towards distractions
Post-Assessment 3

- Health educators can incorporate MM into their classrooms by using each of the following except:
  A. A curricula such as Learning to BREATHE
  B. MM brain breaks
  C. Movement and MM
  D. A religious based curriculum
Happy trails everyone! Hope you enjoyed my dad’s presentation! Thanks for joining!

Questions?

Contact Information:
 rgerbe20@gmail.com
References


References


References


