

The Effects of Prolonged Participation in a Mindfulness-based School Program: Implications for Schools and Developers



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Background and Context

- Mindfulness-based school programming has developed into one of the most prominent ways to help combat the effects of the personal (e.g., unstable home environment) and academic challenges that young students face.
- One key component of these programs is their potential impact on self-regulatory abilities^{1,2}. These skills are necessary for children to carry out a wide range of functions/processes like suppressing inappropriate emotional responses and behavioral impulses, tuning out distractions, and achieving long-term goals³.
- Prior research suggests that students from inner-city areas are more prone to experiencing deficits in self-regulation, and subsequently have more behavioral and academic issues in comparison to their more affluent peers^{4,5,6}.
- Empathy is intrinsically linked to one's ability to be socially aware and see a situation from a different point of view⁷. Prior studies have found participation in mindful activities to have a positive effect on cognitive and affective empathy⁷.

Objectives

- The purpose of this study was to determine the effect of prolonged participation in the Mindfulness through Movement program which teaches students a variety of simple breathing and yoga exercises meant to increase their relaxation skills and instill a greater sense of resiliency.
- Determine the extent to which the intervention impacted short-term, long-term and global regulation abilities of 1st and 2nd year level participants.
- Determine the extent to which the intervention impacted the participants' cognitive and affective empathy levels.

Mindful Yoga

- *"Mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally."*⁸
- Mindful yoga:
 - Incorporates Hatha Yoga movements to increase flexibility and body awareness
 - Meta cognition (thinking about what you are thinking)
 - Breathing techniques to increase attention and concentration

Sample

- 61 children from two faith-based elementary schools located in Philadelphia, PA.
- 28 4th graders were in their first year of the program; 33 5th and 6th graders, 14 and 19 respectively, were in their second consecutive year of the program.
- Sample characteristics: 54% female; mean age = 10.02 years
- School characteristics: Both schools have a primarily African American population with a large number of students coming from homes below the poverty line.



Methods

Participants and Design

- The 4th grade students in their 1st year of the program were from two classes at school A. Both classes had the same program intervention instructor for the 2015/2016 academic year. The students received the program during their last period of the day.
- The 5th and 6th graders were in their second year of the program at school B. These students received the program in the morning. Students had the same intervention instructor during the 2014/2015 and 2015/2016 academic years.
- Participants completed paper-based surveys at pre-test (T1; early fall 2015) and post-test (T2; late spring 2016).

The Intervention

- This program is based off of the Learning to Breathe curriculum and has 5 main components, represented by the acronym SMILE:
 - S – Setting a safe place
 - M – Movement (yoga poses)
 - I – Inhale (breath work/pranayama)
 - L – "Let it be" (mindfulness/meditation)
 - E – Exhale – (star pose/savasana)
- Participants have class once a week for the entire academic year with each class being approximately 40 minutes long. The specific content of each class is based upon the needs of students and changes weekly.

Measures

- Self-regulation was assessed using the Adolescent Self-Regulatory Inventory (ASRI; Mollanen, 2007), which includes subscales for short- and long-term regulation, as well as a total global score (36 items)
- Respondents rated how true each item was for them, ranging from 1 (not at all true for me) to 5 (really true for me); items were averaged into subscale scores.
- Short-term (13 items): *"When I'm bored I fidget or can't sit still"* and *"I forget about whatever else I need to do when I am having fun."*
- Long-term (14 items): *"If something isn't going according to my plans, I change my actions and try to reach my goals"* and *"I can find ways to make myself study even when my friends want to go out."*
- Dispositional empathy was assessed using the Empathy Questionnaire (Zoll & Enz, 2010). The 28-item measure has subscales that target cognitive and affective empathy.
- Respondents rated how much they agreed (1 strongly agree) or disagreed (1 strongly disagree) with each statement.
- Sample items: *"I can tell by looking at a person, whether they are happy"* and *"It upsets me when another child is being shouted at"*.

Figures



Note: Mean pre-test (T1) and post-test (T2) self-regulation (short-term, long-term, and total) and affective empathy scores for participants in either their first or second year of programming. Significant differences were found in short-term regulation between groups at T1 ($p < .05$) and T2 ($p < .001$). Means differed between groups in affective empathy at T1 and T2 ($p < .01$).

Results

- Preliminary analyses: *t*-tests examined group differences in self-regulation and affective empathy at pre- and post-test (see Figures box)
- Focal analyses: Multiple ANCOVAs were conducted with time in program and pretest scores as covariates.
 - Intervention year was significant for short-term regulation, $F(1,58) = 5.03$, $p < .05$, such that 2nd year students showed greater improvement.
 - Intervention year was significant for total regulation, $F(1,58) = 6.04$, $p < .05$, such that 2nd year students avoided decline.
 - Intervention year did not predict long-term regulation, $F(1,58) = 3.18$, $p = .08$, but there is a clear trend.
 - Intervention year did not influence empathy.

Conclusions

Results suggest that students in their second year of this intervention program have greater self-regulatory abilities overall. The short-term and total regulation for both groups remained relatively stable while a slight decrease was seen in long-term regulation for both groups over time. This could be an indication of the program serving as more of a buffer for the retention of skills gained during the first year.

- Future work should examine:
 - whether the benefits of the intervention extend to academic achievement and/or specific attention networks or executive functions.
 - effects of continuous participation on long-term self-regulation abilities

References

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4. Leventhal & Brooks-Gunn, 2000.
5. Poehlmann-Tynan et al., 2016.
6. Rochette & Bernier, 2014.
7. Winning & Boag, 2015.
8. Kabat-Zinn, 2003.