

## A Large-Scale CRCT of a Mindfulness-Based Social and Emotional Learning Program in K-2

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Interest has grown in social and emotional learning (SEL) programs generally, and mindfulness-based programs specifically, as tools for establishing supportive, efficient, and effective classrooms. Simultaneously, the “mindfulness craze” has led to criticism that school-based mindfulness programming is being implemented far in advance of what the evidence currently shows, and furthermore that the quality of mindfulness research is generally low (Davidson & Dahl, 2018; Greenberg & Harris, 2011). The Calm Classroom K-2 (CCK2) project that took place in 30 Chicago Public Schools (CPS) between 2015 and 2018, which may be the largest randomized controlled trial of mindfulness in education to-date, was undertaken to rigorously examine the effectiveness of CCK2 relative to an “active control group” (see Dunning et al., 2018) implementing CPS’ default SEL program, Second Step. Furthermore, this study focused on the five-to-seven-year shift in order to specifically explore the potential of a mindfulness-based approach in supporting the transition to effortful learning across the first few years of compulsory schooling.

**Methods & Sample:** CPS identified a pool of schools that were next in the district’s plan to roll out school-wide SEL to every school. The schools also had to meet grant criteria by having 70%+ economically disadvantaged students and not being rated at CPS’ highest level of school quality. 16 schools were randomly assigned to CCK2 and 16 schools were assigned to the district’s default program, Second Step. (Although Second Step currently has a mindfulness module, none of the schools implemented it during the study years.) Two of the Second Step schools dropped out. Approximately 1,100 students consented to participate in the study and provided at least baseline data. Consistent with the segregation in CPS, approximately half of the schools were 95%+ Black; approximately 1/3 were 85%+ Latinx, and the remainder were racially mixed.

**The Intervention:** The study focused on an enhancement of Calm Classroom (CC) for kindergarten through second grade (CCK2). Standard CC, which primarily consists of 3x/day mindfulness exercises, was implemented in grades 3-8, and was not part of the DOE grant. In addition to 3x/day mindfulness exercises read by the teacher, CCK2 also included weekly 30-minute SEL lessons, a tablet app displaying 2-minute nature videos for use in the classrooms’ “calm corner” (Moreno, Baker, Varey & Hinze-Pifer, 2018), twice yearly parent engagement meetings, and various ancillary resources (e.g., children’s literature, posters displaying diverse children doing mindfulness exercises, comfort objects). Teachers received approximately 11 hours of training and ongoing support per year. Each school remained in the study for two years. Data collection focused on K and 1<sup>st</sup> grade in Y1, and 1<sup>st</sup> and 2<sup>nd</sup> grade in Y2.

**Measures/Outcomes:** Outcomes assessed at the individual student level were SEL skills (e.g., kindness, persistence) using a modified version of the Berkeley Puppet Show, executive function (EF) using the Flanker task, and academic performance using the letter-word recognition and applied problems subscales of the Woodcock-Johnson tests of achievement. Outcomes assessed at the classroom level for students included the positive climate subscale of the CLASS measure, and disruption/engagement using a modified version of the Behavioral Observation of Students in Schools (BOSS). Outcomes assessed at the classroom level for teachers included self-efficacy and daily stress.

**Analyses and Preliminary Results:** To account for the nested nature of the data we employed OLS with standard errors clustered at the school level (classroom level will be added to the model by conference time); results do not meaningfully change when estimated as a HLM. Covariates included baseline score, gender, race, home language, special education, and grade. Executive function differences across CCK2 and Second Step groups were near-zero and non-significant both years. In contrast, Y1 differences for growth in academic performance were non-zero: approximately one raw score point higher in letter-word identification favoring CCK2,  $p < .05$ , Cohen's  $d = .08$ ; approximately half a point higher in applied problems favoring CCK2,  $p = n.s.$ , Cohen's  $d = .10$ . Growth differences were no longer present by the end of the second year.

We were unable to obtain a true baseline for classroom-level observations. Therefore, these analyses are restricted to Y2 only. Consistent with some recent research showing declines in classroom climate over a single academic year (e.g., Moreno et al., 2015; Pianta et al., 2014), for positive climate, both groups declined across fall and spring (CCK2 fall = 5.09, spring = 4.91; Second Step fall = 5.38, spring 5.09), with a trend for the CCK2 decline being smaller (Cohen's  $d$  for the difference in decline = .09,  $p = n.s.$ ). For engagement in learning without disruptions, both groups were highly engaged and displayed no change from fall to spring (CCK2 classrooms were 88% engaged at both time points; Second Step classrooms were 91% engaged at both time points).

**Planned Analyses:** We plan to conduct moderation analyses examining whether the above findings may vary by implementation intensity, and by student level of need (i.e., students with lower baseline EF or academic performance). In addition, we will present validation results for our SEL skills measure, which could be a potentially important contribution given the immense challenges associated with measuring SEL skills in K-2 students other than via teacher report (McKown, 2017). Finally, we will also present the treatment findings for SEL skills and teacher self-efficacy and stress.

**Discussion:** Preliminary results of the CCK2 RCT suggest no stable differences in growth across the treatment and control groups. We expected that the differences in mechanism of action, i.e., EF, would be stronger than they would be in academic performance, however the reverse was true. This could be because our EF measure was not well-suited to the mechanism of mindfulness exercises in that it assessed visual attention rather than auditory attention. The lack of differences in academic performance may help to assuage some stakeholders' concerns that the 3x/daily exercises of CCK2 (vs. the more common SEL format in the Second Step group of once weekly lessons) would be disruptive to instruction effectiveness. We expect that the moderation analyses will shed additional light on whether program effects may exist more strongly in key subgroups.

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