The Impact of Kindness Curriculum Training on Young Children's Cognitive & Academic Skills: Findings Year Two (2019-2020 School Year)

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Introduction to the Kindness Project

- The Kindness Project brings mindfulness training to preschoolers, their families, & teachers. One aim of the Project was to assess the impact of the Kindness Curriculum (KC) on children's cognitive & academic skills (see the Social Report for impact on social-emotional skills).
- In Year 2 (2019-2020 school year), many children, their families, & their teachers faced a variety of **stressors** in their lives, especially as the **COVID-19 pandemic** emerged in the spring of 2020. Thankfully, much of the mindfulness-based Kindness Curriculum training was completed by February 2020. We studied whether the mindfulness-based training had a positive impact & showed benefits into the spring.
- This report examines the **impact of the Kindness Curriculum** (KC) on preschoolers' **cognitive, academic & school readiness skills**, as reported by the parents & teachers.

Earlier Work Using the Kindness Curriculum with Young Children

The Kindness Project for Preschool Children was based on research by Flook, Goldberg, Pinger, & Davidson (2015)

- They studied 68 preschool children (4-5 years old) in a public-school setting, randomly assigned by classroom to Kindness Curriculum (KC) Intervention group or Control group.
- Children who received the Kindness Curriculum (KC) showed greater improvement in teacherreported social competence (TSC) in the areas of prosocial behavior, emotional regulation, & total scores than those in the Control group.
- Children in the KC Group had higher report card grades in the areas of approaches to learning, health & physical development, & social-emotional development.
- The KC Group also showed modest positive effects (effect sizes favoring the KC group) in cognitive flexibility (Card Sort task) and delay of gratification compared to the Control Group.
- The Kindness Curriculum appeared to be particularly beneficial for children with lower baseline functioning (i.e., started out with lower social competence & lower executive functioning) as they showed greater improvement in social competence over time compared to those in the control group.

Other Research on Mindfulness with Young Children

- Other research demonstrated that young children (ages 4-6) in mindfulness-based programs were **more prosocial**, **less hyperactive**, & showed greater improvement in self-regulation (Viglas & Perlman, 2018). Their mindfulness program consisted of 20-minute lessons delivered 3 times a week for 6 weeks by an *external* mindfulness teacher (& the primary researcher in the study).
- Children (6-7 years) in mindfulness-based programs have also shown improvement in executive function (Flanker inhibitory control, working memory, cognitive flexibility) & behavior (attention, peer relationship problems, & prosocial behavior) (Janz et al., 2019). The mindfulness program, CalmSpace, was taught by trained classroom teachers (1/2-day training & coaching support from lead researcher) for 2 school terms.
- However, there is **not much research** that systematically assesses the impact of mindfulness training implemented by *trained classroom teachers*, especially with younger children (3-5 years).

Our Kindness Project: Comparisons to Flook & Colleagues' (2015) Study

Our Kindness Project was based on the study by Flook & colleagues:

- We used many of the same outcome measures: Sharing, Social Competence, Executive Function measures (Card Sort & Flanker Task), and School Grades.
- In year 1 (2018-19), we added measures of: Social Self-Efficacy, Physical Self-Regulation, Empathy Skills, Social-Emotional Competency (ASQ-SE), School Success Skills (TS-Gold), & Mindfulness Skills. In year 2, we added measures of behavioral strengths & difficulties, & parents' perspectives on social competence.
- In year 1, teachers from 10 classrooms received training from HMI coaches, with 6 classrooms serving as a waitlist control group. In June 2019, teachers from the waitlist were trained by our Coaches & all 16 classrooms used the Kindness Curriculum in the 2019-20 school year.

We expanded their work in 3 important ways:

- 1. A larger, more diverse sample of over 225 children, more than 50% from lower income and non-White families, participated in both years 1 & 2.
- 2. Younger children, preschoolers (3-4 years) were included in addition to 4K (4-5 years) children.
- **3.** We used a "train the teacher model" instead of using the mindfulness coaches to implement the KC.
 - The goal of the "train the teacher model" was to make the Kindness Curriculum available more broadly & support the teachers through their development of personal mindfulness practices & mindful teaching skills.
 - Mindfulness Coaches offered ongoing support to teachers in their implementation of the KC & in their personal mindfulness practices. Our Coaches took over teacher training in year 2.

Our Year 1 Findings: Supports & Extends Previous Work

- The mindfulness-based *Kindness Curriculum* led to improved social skills
 - The Curriculum contributed to children's improved **Sharing** e.g., KC children shared more, especially with a sick child.
 - **Empathy**—e.g., KC children improved significantly in both cognitive understanding of empathy & display of empathetic behaviors.
- The mindfulness-based *Kindness Curriculum* led to improved cognitive & academic skills
 - The Curriculum contributed to improved Executive Function e.g., KC children displayed better scores in inhibition of poor responses, mental flexibility, planning, & overall Executive Functioning
 - **TS Gold** e.g., KC children had better language, cognitive, literacy, & math skills.
 - **Report Cards** e.g., KC children had stronger scores in social-emotional, language, math, & health/physical scales.
 - **Flanker Task** e.g., KC children showed improved inhibitory control & were much more likely to make it to the harder trials than children in the control group.
- The Kindness Curriculum was effective in both preschool (3-4 years) & 4K (4-5 years) classrooms: e.g., even younger children showed significant gains in many areas!

Research Questions for the Kindness Project

Primary Questions in Year 2: Children in All Classrooms Received the KC

- Does the Curriculum help to improve children's social skills?
- Does the Curriculum contribute to improved cognitive & academic skills?
- Is the *Kindness Curriculum* effective in both *preschool (3-4 years) & 4K (4-5 years) classrooms?*
- Did the benefits of the mindfulness-based *Kindness Curriculum* show evidence of carrying over for children who continued in the programs after summer break?
- Is participation in the Kindness Curriculum beneficial to & reaching all children, including those *from lower income families? Is it inclusive enough of ethnic diversity?*

Practical Questions & Logistics:

- Do teachers find the Kindness Curriculum **useful personally & in their classrooms**? Can it be **cost-effectively implemented** in preschool & 4K classrooms?
- Does the Kindness Curriculum provide teachers with **additional tools** to support the **positive development** of all children?

Study Design – Year 2: 2019 - 2020

Goals:

- 1. Bring the Kindness Curriculum (KC) to all classrooms & measure impact. In year 2, children in all 16 participating classrooms received the KC beginning in fall 2019.
- 2. Compare the effectiveness of the mindfulness-based Kindness Curriculum across age (preschool or 4K), socioeconomic status (lower or higher), previous KC training (new to KC or continuing), & gender (girls or boys).
 - All teachers received Kindness Curriculum training, either in **June 2018** or in **June 2019** [i.e., the Control Group (from year 1) teachers received training in 2019].
 - All children assessed on social, cognitive, & developmental skills, & report cards, as reported by teachers & parents. Children continuing in the programs were individually assessed on the Card Sort task, Sharing, & Mindfulness Scenarios in fall.



Study Design: Phase Descriptions

• Teacher Training – Over two weeks in June 2019

- Teachers, who were previously in the Control condition, participated in 26 hours of mindfulness & Kindness
 Curriculum (KC) training led by local Mindfulness coaches focused on personal mindfulness practices, mindful
 teaching, & teaching the KC.
- Coaches provided "booster sessions" for continuing teachers & supported all teachers in developing their personal practice & in teaching the mindfulness-based KC.
- \circ All teachers implemented the KC in the 2019-2020 school year.
- Pre-Testing: September & October 2019 (about 6 weeks)
 - All children were assessed by teachers & parents on social & cognitive skills during this Fall pre-testing period.
 - In September & October 2019, college- student researchers individually assessed **ONLY continuing children** on three measures: cognitive flexibility & attention (DCCST), Mindfulness scenarios, & a Sharing task.

• Teachers Implemented the Kindness Curriculum (KC) in classrooms: About 12 weeks

- The Curriculum began in fall 2019 & included 24 lessons over about 12 weeks. Each lesson is 20-30 minutes. Teachers were encouraged to break-up lessons as needed to meet the needs in their classrooms.
- Teachers completed reflection measures about how each lesson went. Teachers finished teaching the KC in January or February of 2020. Teachers were encouraged to continue mindfulness practices regularly.

• Post-Testing of Children: March 2020 pandemic adaptation

- In March 2020, teachers & parents reported on children's social & cognitive skills.
- Individual assessment for **continuing children** was cancelled because the children were no longer in the classrooms due to the COVID-19 pandemic which forced schools to close.

Kindness Project Participating Agencies Bridge's Child Enrichment Center UW-Oshkosh Head Start, CELC Two Preschool Classrooms Two Preschool Classrooms Some New Children & Some Continuing Some New Children & Some Continuing from 2018-19 from 2018-19 Four 4K Classrooms (am & pm) Four 4K Classrooms (full day) Some New Children & Some Continuing Some New Children & Some Continuing from 2018-19 from 2018-19 Note: Same teachers teach am & pm **Children's Center, UWO Fox Cities Appleton Even-Start Family Literacy Two Preschool Classrooms**

Morning Preschool Classroom Afternoon Preschool Classroom

Note: Same teachers teach am & pm

Some New & Some Continuing Note: Teachers teach in both rooms

ALL children were taught the Kindness Curriculum; About 98% of parents consented to also provide measures

Study Design Overview 248 Children from 16 classrooms



* About 216 children completed measures in both fall & spring

The Mindfulness-based Kindness Curriculum for Preschoolers Healthy Minds Innovation (2017)

- Available at <u>https://centerhealthyminds.org/join-the-movement/sign-up-to-receive-the-kindness-curriculum</u>
- This Project trained classroom teachers to implement the Kindness Curriculum (i.e., "Train the Teacher" Model)

8 Themes, each with 3 lessons

Theme 1: Mindful Bodies & Planting Seeds of Kindness

Theme 2: I Feel Emotions on the Inside

Theme 3: How I Feel on the Inside, Shows on the Outside

Theme 4: Taking Care of Strong Emotions on the Inside & Outside Theme 5: Calming & Working Out Problems

Theme 6: Gratitude

Theme 7: All People Depend on Each Other & The Earth

Theme 8: Gratitude & Caring for Our World & Wrap Up

The Kindness Curriculum Themes are designed around these A to G Principles

- Attention. Children learn that what they focus on is a choice. Through focusing attention on a variety of *external* sensations (the sound of a bell) & *internal* sensations (feeling happy or sad), children learn they can direct their attention & maintain focus.
- **Breath & Body.** Children learn to use their breath to cultivate peace & quiet. The children rest on their backs with a stuffed toy on their belly. The toy provides an object to "rock to sleep" with the breath, while the breathing calms the body.
- **Caring.** Children learn to think about how others are feeling & cultivate kindness. Children experience books that teach about struggles, & brainstorm ways to help—even if just offering a smile.
- **Depending on other people.** We emphasize that everyone supports & is supported by others. Children learn to see themselves as helpers & begin to develop gratitude for the kindness of others.
- **Emotions.** Teachers & children take turns pretending to be mad, sad, happy or surprised, guessing which emotion was expressed, & talking about what that emotion feels like in the body.
- Forgiveness. Young children can be particularly hard on themselves and others and we teach them that everyone makes mistakes. Children learn to forgive themselves & others.
- **Gratitude.** Children learn to recognize the kind acts that other people do for them. Then, they talk about being thankful to those people for how they help us.

Methodology: Collection of Child & Teacher-reported Cognitive Measures

- In both fall (before the Kindness Curriculum) & spring (after the KC), teachers completed:
 - **TS-Gold (Teaching Strategies Gold),** measures knowledge, skills, & behaviors predictive of school success.
 - BRIEF-P forms, to assess each child's executive function skills.
- At the end of the first semester (January), teachers completed
 - **Report Cards** to assess academic achievement & school progress.
- In the Spring (after the KC), teachers completed
 - Impact on Classroom of the KC & helpfulness of the Coaches.
- Due to COVID-19, 2nd semester report cards were not done & children were tested on the Dimensional Change Card Sort (DCCST) test of cognitive flexibility only in fall.



*SES Categories based on the	
eligibility for free/reduced lunch	

Demographics Year 2: 2019-2020

Breakdowns by Groups			Fall 2019 (n= 241)		Spring 2020 (n= 239)			Overall: Participated in T1 or T2 (n = 248)
		Continuing from Kindness Group (n = 48)	Continuing from Control Group (n = 30)	New Children (n = 163)	Continuing from Kindness Group (n = 43)	Continuing from Control Group (n = 30)	New Children (n = 166)	n = 248
der	Female	25	15	79	24	15	77	120
Age Gende	Male	23	15	84	19	15	89	128
96	<48 months	13	2	62	13	2	64	84
S* Age	4-5 years	35	28	100	30	28	101	164
*S	Lower	24	17	97	21	17	100	144
SE	Higher	24	13	48	22	13	49	86
	NON-WHITE	19	18	95	17	18	96	136
	• Black	3	6	22	2	6	23	33
city	• Latinx	9	4	39	8	4	37	52
thni	• Asian	2	3	13	2	3	13	18
Ð	• Other/ Mixed	5	5	21	5	5	23	33
	WHITE	29	12	67	26	12	69	111

Study Measures

MEASURE	COMPLETED BY	MEASURE DESCRIPTION	SUBSCALE/ No. of items
Dimensional Change Card Sort (DCCST)	Child	The DCCS measures children's cognitive flexibility , a core aspect of executive function.	Practice Trials (8), Color Matching (5), Shape matching (5), & Mixed Color & Shape (15-30)
Behavior Rating Inventory of Executive Function— Preschool Version (BRIEF-P)	Teacher	Measures children's ability to control their behavior , to respond in accordance with their environment , to move between tasks, to remember & use instructions to complete a task. Teacher reports on difficulties in multiple areas of children's executive functioning .	 Inhibitory Self-Control (16 items) Emotional Control (10 items) Shift Scale (10 items) Working Memory Scale (17 items) Plan/Organize Scale (10 items) (1 & 2 in Social Report; 3-5 & related composite reported here)
Teaching Strategies Gold (TS-Gold)	Teacher	Measures the knowledge , skills , & behaviors most predictive of school success, including social-emotional development, physical , language , cognitive development & in the content areas of literacy , mathematics , and English-language acquisition	38 Objectives – (Social emotional findings in the Social Report)
Report Card	Teacher	Report Cards assess children's academic achievement & school progress .	Social emotional, Language, Mathematics, Health & Physical
Impact on Classroom	Teacher	Measures the impact of the Kindness Curriculum in each classroom	8 rating scale & open-ended questions on Curricular impact & Coaching support

COVID-19 Story from Agencies for the 2019-20 School Year

University Children's Center (UCC)

- Required to close from March 17th to June 8th, 2020. They used Facebook Live to offer 1 hour-long activities Monday-Friday. Some components of the Kindness Curriculum (KC) were implemented during this time. For example, a teacher reported doing breathing exercises during Facebook Live & families had the opportunity to go to the website to participate in activities together. The UCC Director said the KC was difficult to implement during the closure.
- UCC re-opened in June 2020 & in the Summer of 2020, no children tested positive & only 1 staff member tested positive. UCC remained open in the 2020-21 school year & implemented the KC beginning in fall.

Head Start CELC (HS CELC)

- Teachers reported teaching/connecting with children virtually during Spring 2020 when the CELC was closed. They sent daily emails with videos explaining lesson plans & started class Zoom calls once/week.
- Some teachers reported using components of the KC to support & help children cope during this time (e.g., they taught breathing techniques, social stories, yoga cards & kindness).
- Some teachers also reported that components of the KC including, journaling, yoga, breathing & meditation personally helped them cope during this difficult time.



COVID-19 Story from Agencies for the 2019-20 School Year

Bridges (PB CELC)

Even Start CELC (ES CELC)

- Preschool classrooms were in person all year except during 4 weeks of the Spring semester when the center had to close due to low enrollment numbers.
 4K classrooms were required to go online beginning in spring. The Director reported that because all their classrooms started implementing the KC early in the Fall and were able to finish the lessons by February 2020, the center's closure during these 4 weeks did not affect the implementation of the KC.
- Only a **couple of staff** members **tested positive**, & the **in-center transmission** was **very low**.
- Teachers reported that concepts & practices of the mindfulness training including the concept of thankfulness, practicing taking breaks, doing body scans, stretching and reflecting at the beginning & end of each day personally helped them during this stressful time.

- Teachers completed the first 12 lessons of the KC but were not able to complete the KC when the CELC was closed in Spring 2020. Instead, they used the app Remind to check in with the children, & the district's curriculum only to make sure there was no learning or experiences gap for children and their families.
- Some teachers reported finding practices of the mindfulness teacher training personally helpful to them during this difficult time. For example, a teacher reported doings walks, listening & feeling how her body feels, doing yoga & pausing to breathe.

Dimensional Change Card Sort – Sample Question

- In the first set of trials, children are provided a picture and then asked to match the **color** of the picture with two other provided pictures.
- In the second set of trials, children are asked to match the **shape** of a picture with two provided pictures.
- In the third set, "**mixed**" trials, children are provided a picture, & they are asked to match *either by color or by shape*.











Overview of Findings for DCCS

In fall, how did children continuing from the Kindness Curriculum vs. the Control Group compare?

 Children continuing in the KC & children continuing from the control group showed no significant difference on Pre-Switch Scores (the score on the color matching trials), Post-Switch Scores (the score on the shape matching trials), Mixed 15 Scores (the score on the third set of trials), Post-Switch RT (the average time it took the child to touch a picture on the screen), or Overall % Correct.

Were scores comparable across socioeconomic status (SES)?

• There was no significant difference between Higher SES & Lower SES children on Pre-Switch Score, Post-Switch Score, & Overall % Correct. However, there was a significant difference between Higher SES & Lower SES children on the Mixed trials, where Higher SES children did significantly better than Lower SES.

Were scores comparable for preschool & 4K children?

• Preschool & 4K children performed comparably. There were **no significant differences** between Preschool & 4K children on **Pre-Switch**, **Post Switch**, **or Mixed Trial Scores**, **or Overall % Correct & Post Switch RT**.

Were scores comparable for girls & boys?

• Boys & girls performed similarly. There were not significant differences between the girls & boys on Pre-Switch, Post Switch, or Mixed Trial Scores, or Overall % Correct & Post Switch RT.



Results – DCCS Mixed 15 Varied with SES (Socioeconomic Status)





Behavior Rating Inventory of Executive Function—Preschool Version (BRIEF-P)

BRIEF-P is used to assess multiple areas of children's executive functioning. Teachers are asked to report how often particular behaviors have been a *problem in the past 6 months*.



Overview of Findings for BRIEF-P:

In Fall, how did children from *continuing vs new* to the programs compare?

Children who were continuing from the Kindness Curriculum did significantly better than the new children in the areas of Working Memory, Planning/Organizing, Global Executive Composite (an overall evaluation of all 5 executive function skills) & Emergent Metacognition Index, which measures metacognitive skills including working memory, planning & organizing.

Was there improvement *over time*?

 Children significantly improved over time in the areas of Shift, Planning/Organizing, Working Memory, Emergent Metacognition Index, Global Executive Composite, & Flexibility Index, which measures mental flexibility including shifting attention & emotional control.

Was improvement over time comparable across socioeconomic status (SES)?

• Lower SES children improved significantly in the areas of Working Memory, Planning/Organizing & Emergent Metacognitive Index over time, & their improvement was greater than that of higher SES children who started the year better.

Was improvement over time comparable for continuing & new children?

• New children started lower than continuing children but improved significantly in the areas of Planning/Organizing, Working Memory & Emergent Metacognitive Index over time, leading to comparable performance by spring.



Overview of Findings for BRIEF-P (continued):

Was improvement over time comparable for preschool and 4K children?

• 4K children improved significantly in the areas of Planning/Organizing, Working Memory, Emergent Metacognitive Index & Global Executive Composite over time compared to preschool children who maintained their skills but did not improve significantly.

Was improvement over time comparable for girls and boys?

• Girls were rated as having better executive function skills in most areas compared to boys. However, boys improved significantly in several areas such as Emotional Control & Working Memory.

The following pages provide details on the findings summarized here! There are also some summaries below of the *percentage of children who improved*.

Improvement in Executive Function Skills (BRIEF-P)

BRIEF-P tested executive function skills including working memory, shifting attention, emotional control, inhibitory self-control, and planning & organizing to report on children's problem behaviors in these specific areas & their improvement over time.

Measure	Percentage of Children who Maintained or Improved their skills over 2019-20
Emergent Metacognition Index (measures metacognitive skills including working memory, planning & organizing).	73.9% maintained or improved
<u>Flexibility Index</u> (measures mental flexibility including shifting attention & emotional control).	67.9% maintained or improved
<u>Global Executive Composite (an overall</u> evaluation of all 5 executive function skills subscales).	68.9% maintained or improved





Improvement by Socioeconomic Groups (SES) & Age (Preschool or 4K)

Measure	Group	Percentage Improved over 2019 – 2020	Chi-Square
Emergent Metacognition Index	Lower SES (n =141)	61.0% (86)	Chi Square = 5.28 , $p = .022$; more lower SES children improved
	Higher SES (n = 74)	44.6% (33)	
Flexibility Index	Lower SES (n = 141)	44.7% (63)	Chi Square = $.55$, $p = .458$; higher SES slightly higher -no significant
	Higher SES (n = 74)	50% (37)	differences
Global Executive Compo	site Lower SES (n = 141)	61.7% (87)	Chi Square = 1.17 , $p = .279$; lower SES somewhat higher-no
	Higher SES (n = 74)	54.1% (40)	significant differences
Emergent Metacognition Index	Preschool (3-yr-olds) (n = 78)	48.7% (38)	Chi Square = 2.18 , $p = .140$; similar rates-no significant
	4K Children (n = 137)	59.1% (81)	differences
Flexibility Index	Preschool (3-yr-olds) (n = 78)	47.4% (37)	Chi Square = $.04$, $p = .838$; similar rates-no significant differences
	4K Children (n = 137)	46% (63)	
Global Executive Compo	site Preschool (3-yr-olds) (n = 78)	51.3% (40)	Chi Square = 3.07 , $p = .080$; slightly higher 4K rates
	4K Children (n = 137)	63.5% (87)	marginally significant differences

Results: BRIEF-P Planning/Organizing & Emergent Metacognition Index (EMI) varied with Continuing or New



Results: BRIEF-P Working Memory varied with Continuing or New



Continuing children showed **better Working Memory** skills than **new children**, but **new children improved significantly over time**.

Results: BRIEF-P Planning/Organizing varied with Preschool vs 4K



Results: BRIEF-P Emergent Metacognition Index (EMI) & Global Executive Composite (GEC) varied with Preschool vs 4K



Results: BRIEF-P Working Memory varied with Preschool vs 4K



Results: BRIEF-P Working Memory & Planning/Organizing varied with Socioeconomic Status (SES)



Results: BRIEF-P Emergent Metacognition Index (EMI) varied with Socioeconomic Status (SES)





Time x SES: F(1, 213) = 5.83, p = .017,ES = .027 ME Time F(1, 213) = 11.1, p = .001, ES = .050ME SES F(1, 213) = 4.26, p = .040, ES = .020*ES = Effect size, eta squared Range: 27-81 Lower SES children started the year with lower EMI scores (a measure of metacognitive skills including working memory, planning & organizing) than higher SES children but significantly improved over time, & *caught up* to higher SES children by Spring.

Remember: Lower scores are better.

Results: BRIEF-P Working Memory & Flexibility Index varied with Gender



Results: BRIEF-P Emotional Control varied with Gender



Boys started the year with significantly lower scores than girls on Emotional Control but showed significant improvement over time while girls maintained their skills. Girls displayed better emotional control overall compared to boys.

Results: BRIEF-P Shift & Planning/Organizing varied with Gender



Results: BRIEF-P Emergent Metacognition Index (EMI) & Global Executive Composite varied with Gender (GEC)



Teaching Strategies-GOLD (TS-GOLD)

- TS-Gold measures the **knowledge**, skills, & behaviors most predictive of school success. Teachers at the CELC agencies use the TS-Gold regularly to track children's developmental progress.
- Provides developmental progressions & learning objectives in the areas of social-emotional, physical, language, and cognitive development, & in the content areas of literacy, mathematics, & English-language acquisition.
- Indicators & examples enable teachers to rate children's knowledge, skills, & behaviors on a 10-point scale of "Not Yet" (1-point) to level 9 (10-points)
- The progressions use colored bands to show widely held expectations for various ages. The colored bands show educators & families which skills & behaviors are typical for children of a particular age or class/grade. For this project, we compare TS-Gold scores by group.







Sample from TS-GOLD: Shows objective, item, & color bands

Overview of Cognitive Findings for TS-GOLD

In fall, how did children *continuing* vs. *new* to the programs compare?

• At the beginning of the year, children continuing in the programs had better **Physical**, **Cognitive**, **Literacy**, & **Mathematics** scores as well as better **Overall Averages** than the new children.

Was there improvement over time?

• There was significant overall improvement over time in all four key areas: Physical, Cognitive, Literacy, & Mathematics, as well as overall improvement in Overall Averages.

Was improvement over time comparable for continuing & new children?

• Continuing children did better in all four areas listed above, including **Overall Averages**, but both continuing & new children improved comparably over time.

Was improvement over time comparable across socioeconomic status (SES)?

• Higher SES children had better **Physical**, **Cognitive**, **Literacy**, & **Mathematics** scores, in addition to better **Overall Averages** than Lower SES children, but both groups improved comparably over time.



Overview of Findings on TS-Gold

Was improvement over time comparable for preschool & 4K children?

• As expected, 4K children showed better **TS Gold** skills than preschoolers on **Cognitive**, **Literacy**, **Mathematics**, **& Physical** skills & on **Overall Averages**. Both groups improved similarly over time.

Was improvement over time comparable for girls & boys?

• There were no significant differences between boys & girls on Physical, Cognitive, Literacy, or Mathematics skills, as well as Overall Averages.

The following pages provide details on the findings summarized above! There are also some summaries below of the *percentage of children who improved*.



TS Gold Improvement by Socioeconomic Status (SES) & Age (Preschool or 4K)

Measure	Group	Percentage Improved over 2019-2020	Chi-Squared		
	Lower SES (n=137)	92.7% (127)	Chi Square = $.001, p = .973$; similar		
Cognitive Skills	Higher SES (n = 43)	92.9% (39)	rates – no significant differences		
	Lower SES (n=137)	94.7% (125)	Chi Square = .169, <i>p</i> = .681; similar		
Mathematics Skills	Higher SES (n = 43)	93.0% (40)	rates – no significant differences		
Overall Average	Lower SES (n=137)	46.3% (38)	Chi Square = 3.544 , $p = .060$;		
	Higher SES (n = 43)	62.8% (27)	marginally significant differences		
	Preschool (n = 41)	97.6% (40)	Chi Square = 1.837 , $p = .175$; similar		
Cognitive Skills	4K (n = 139)	91.3% (126)	rates – no significant differences		
Madhamadian Chille	Preschool (n = 41)	92.5% (37)	Chi Square = $.307, p = .580$; similar		
Mathematics Skills	4K (n = 139)	94.8% (128)	rates – no significant differences		
	Preschool (n = 41)	46.3% (19)	Chi Square = $.330, p = .566$; similar		
Overall Average	4K (n = 139)	51.4% (71)	rates – no significant differences		

Results: TS-Gold Physical & Cognitive Skills Varied by Continuing or New Students



Children continuing in the programs had better **Physical** & **Cognitive** skills compared to children new to the programs. Both groups improved over time.

Physical Skills

ME Time: F(1, 178) = 322.15, p = <.001, *ES = .644ME Cont/New: F(1, 178) = 15.91, p = <.001, *ES = .082*ES = Effect size, eta squared

Cognitive Skills ME Time: *F*(1, 178) = 261.90, *p* = < .001, *ES = .595 ME Cont/New: *F*(1, 178) = 23.10, *p* = < .001, *ES = .115 *ES = Effect size, eta squared





Results: TS-Gold Literacy & Mathematics Skills Varied by Continuing or New Students



Children continuing in the programs had better Literacy, & Mathematics skills compared to children new to the programs. Both groups improved over time

$\frac{\text{Literacy Skills}}{\text{ME Time: } F(1, 178) = 425.54, p = <.001, *ES = .705}$ ME Cont/New: F(1, 178) = 20.26, p = <.001, *ES = .102*ES = Effect size, eta squared

Mathematics Skills ME Time: *F*(1, 178) = 182.91, *p* = < .001, *ES = .508 ME Cont/New: *F*(1, 178) = 15.03, *p* = < .001, *ES = .078 *ES = Effect size, eta squared

Results: TS-Gold Overall Averages Varied by Continuing or New Students



Results: TS-Gold Physical Skills Varied with Socioeconomic Status



Results: TS-Gold Cognitive Skills Varied with Socioeconomic Status



Results: TS-Gold Literacy & Mathematics Skills Varied with Socioeconomic Status



Results: TS-Gold Overall Averages Varied with Socioeconomic Status



Results: TS-Gold Physical Scores Varied with Age





Physical Skills

Time x Age: F(1, 178) = 13.50, p = <.001, ES = .07ME Time: F(1, 178) = 247.82, p < .001, ES = .58ME Age: F(1, 178) = 105.95, p = <.001, ES = .37*ES = Effect size, eta squared **Physical** skills increased comparably for both Preschool & 4K children, with 4K children starting higher as expected & remaining higher. Further, 4K children improved more over time.

Results: TS-Gold Cognitive, Literacy, & Mathematics Skills Varied with Age





As expected, 4K children did better on **Cognitive**, **Literacy**, & **Mathematics** skills than Preschool children. In all these areas, both groups improved comparably over time!



Results: TS-Gold Overall Averages Varied with Age



There was no significant differences between Preschool and 4K children on **Overall Averages**, but 4K children did do better in these areas compared to Preschool children.

Overall Average ME Time: F(1, 178) = 382.01, p = < .001, *ES = .683</td> ME Pre vs 4K: F(1, 178) = 55.27, p = < .001, *ES = .238</td> *ES = Effect Size, eta squared



Report Cards

Teachers completed report cards following the first semester of school (January).

Bridges Enrichment Center, Head Start & Even Start use the same Report Card system.

Children's Center uses a qualitative progress report, noting areas in which children are excelling & areas where they could improve. However, all agencies have similar underlying themes & expectations.

Please remember that Report Cards were not done after the 2nd semester due to the COVID 19 closings.

Agency:	Head Start	Bridges CEC	Even Start	Children's Center
Report Cards for:	4K	4K	Preschool	4K & Preschool
Questions:	6 social emotional 9 language 5 mathematics 4 health & physical	6 social emotional 9 language 5 mathematics 4 health & physical	6 social emotional 9 language 5 mathematics 4 health & physical	1 social emotional 1 language 1 mathematics 1 health & physical

Overview of Academic Skills Findings for Report Cards

After the 1st semester, how did children *continuing* vs. *new* to the programs compare?

• Compared to children new to the programs, children who were continuing scored significantly higher on Math & English Language Arts scores after their first semester.

After the 1st semester, were scores comparable across socioeconomic status (SES)?

• Higher SES children scored significantly higher on **English Language Arts & Math** scores after their first semester compared to lower SES children.

After the 1st semester, were scores comparable for girls & boys?

• Yes, there were no significant differences between boys & girls on English, Language Arts, or Math scores.



Report Card results for Social/emotional skills & Health/Physical Development are in the Social Outcomes Report



Results: Report Card English Language Arts & Math Scores Varied with Continuing or New Students



Compared to students new to the programs, children who were continuing in the curriculum scored *significantly higher on Math & English Language Arts scores* after their first semester.

English Language Arts Scores ME Cont or New: *t*(1, 142) = 3.44, *p* = < .001, *ES = .618

Math Scores ME Cont or New: *t*(1, 142) = 2.92, *p* = .004, *ES = .526

*ES = Effect size, eta squared



Results: Report Card English Language Arts & Math Scores Varied with Socioeconomic Status



Higher SES children scored significantly higher on English Language Arts & Math scores after their first semester compared to lower SES children.

English Language Arts Scores ME SES: *t*(1, 141) = -4.77, *p* = < .001, *ES = -.896

Math Scores ME SES: *t*(1, 141) = -4.38, *p* = < .001, *ES = -.822

Impact on Classroom (Teacher-Reported)

This measure used 8 questions (ratings & comments) to assess teachers' impressions of:

- If the teachers found the Curriculum **useful**
- If the children **remembered** the lessons
- If the Kindness Curriculum (KC) had a **positive impact** on the classroom
- If KC training **prepared** the teachers for implementation of the KC
- If training helped them to develop their personal mindfulness practices
- The **support** of the mindfulness coaches
- If the teachers were **anticipating** utilizing the Kindness Curriculum in the following year

 Teacher's Name:
 Date:

 We value your feedback and appreciate any examples you can share regarding the impact of the Kindness Curriculum on your teaching and classroom. We also would like to know your impressions of having the mindfulness coaches available for support.

 Please indicate your agreement with each of the statements below, using the following scale:

	0			, 0
1	2	3	4	5
Strongly	Disagree	Neutral	Agree	Strongly
Disagree				Agree

- 1. I found the Kindness Curriculum to be useful in my classroom. ______ Please comment:
- The children seemed to remember key concepts (e.g., kindness to others) from the Curriculum. Comments or examples:
- 4. The mindfulness training helped me to develop my own personal mindfulness practice. Comments or examples:

	15	
OU	From 1=strongly disagree to 5=strongly agree	Ω

Results: Teacher Impact on Classroom - Rating

	To evaluate the classroom impact of the Kindness Curriculum, teachers were asked to rate									
	eight statements (below) on the following scale & j							nments.		
		0: n/a	1: Strongly disagree	2: Disagree	3: Neutr	al	4: Agree	5: Strongly Agree		
tem						Mean	Std.	Dev.		
U sefulness of KC							4.35	0.6	51	
Children remembered the Key Concepts							4.03	0.6	52	
Fraini	ng - tea	ich KC					4.44	0.6	53	
Fraini	ng - de	velop Pers	onal Mindfu	lness			4.31	0.7	79	
KC - P	ositive	Impact					4.18	0.7	73	
Coaches - support in the Class						4.59	0.5	51		
Coaches – support for the Self							4.68	0.7	73	
Jsing the KC Next Year							4.50	0.7	73	

Results: Teacher Impact on Classroom - Comments

Most teacher comments were positive & some offered feedback on implementing the Curriculum in the future. Here are some comments that teachers provided.

I found the Kindness Curriculum to be useful in my classroom:

- "I truly see a change in the classroom using the curriculum."
- "The kindness curriculum has been a great addition in teaching the kids mindfulness, kindness, and about their feelings and others' feelings."

The children seemed to remember key concepts from the curriculum:

- "The children have been even pointing out when they see others being kind. They will tell us to get a sticker for them for the garden."
- "Some students retain information more than others."

The training helped prepare me to use the Curriculum:

- "Great, detailed training."
- "This is my second time implementing. I feel more confident this year."

The mindfulness training helped me to develop my own personal mindfulness practice:

• "We often forget about taking time for ourselves. The relaxation training was amazing and I feel I take time now because it was so beneficial."

The Kindness Curriculum had a positive impact on my classroom environment:

• "The kids were more kind to each other. Enjoyed the meditation, yoga, and growing friendship wish."

The mindfulness coaches provided me with helpful support in the classroom:

• "They are always available to answer questions."

The mindfulness coaches provided me with helpful support with my own mindfulness practice

• "They are both amazing and very encouraging and supportive."

I'm looking forward to using the Curriculum in my classroom again next year:

• "I think the lesson concepts can be taught but I'd like to do my own twist on it."

Parents' Impressions of Kindness Curriculum Impact on Their Children

Sample Items

Parents were asked to share their perceptions of the impact of the Kindness Curriculum on their children

Four open-ended questions & four rating scale questions assessed parents' perceptions of the Kindness Curriculum & use of KC materials at home.

 How often does your child talk about things they learned in the Kindness Curriculum at home (e.g., kindness to others, the earth, or to the self)? If your child talks about the Kindness Curriculum, can you think of any examples of wh 	Never 0 at they h	1 nave tal	2 ked abo	3 out?	Often 4
 2. How often do you see your child use mindfulness/kindness activities at home (e.g., pinwheel, "mind jar", the Caring Song)? If your child uses mindfulness/kindness activities at home, what kinds of things have y Please describe in a few words: 	Neve 0 ou seen	er 1 them d	2	3	Often 4
 3. Since beginning the Kindness Curriculum, how often do you see your child display kindness to others or kindness to you (e.g., hold doors for others, pick up trash from the floor)? If you have seen your child display kindness to others or kindness to you, please tell us about it: 	N0 0	ever 1	2	3	Often 4



Results: Parent Reported Impact at Home

Most parents' comments were positive, and many provided wonderful examples of how the Curriculum was applied at home. Here are representative comments that parents provided.

How often does your child *talk about things* they learned in the KC at home? Can you think of any examples of what they have talked about?

• "[Child] asks how to help & about others' feelings; [child] talks about recycling."

How often do you see your child use mindfulness/kindness activities at home? What kinds of things have you seen them do?
"She has used the online videos to calm down by her own request. She can do breathing exercises."

Since beginning the KC, how often do you see your child *display kindness* to others or kindness to you? If you have seen this behavior, please tell us about it:

- "...is thoughtful & wants to help likes to clean, pick up garbage, hold door, help his brother- sometimes too much."
- "He cleans up after spills, he comes to give me hugs or says, "I want a hug" or "I love you Mommy" and will show his sister affection as well."

Have you noticed any *changes in your child's behavior* since they have been participating in the Kindness curriculum? Tell us about the things you have noticed:

- "She is more aware of her feelings and has more language to describe those feelings as a result of the project. When she is upset, she asks for help, for instance, special music or to be tucked in on the couch. She is very self-aware."
- "Less reactive to being told no or things not going his way, more outwardly affectionate, wants to help with everyday tasks, more aware of my moods, feeling, i.e. He will comment if he sees me upset 'are you ok?""
- "She calms down if upset or hurt much faster. Things that used to upset her, don't have as big of impact on her now. More caring to her sister."

Highlights of Year 2 Findings on Cognitive & Academic Impact

Dimensional Change Card Sort Test—only done in fall

In Fall 2019, there were no significant differences in Pre-Switch scores, Post-Switch Scores, Mixed 15 scores, Reaction Time, or Overall % Correct between continuing & new children in the Kindness Project. However, Higher SES children scored significantly better on the Mixed 15 trials than Lower SES children.

BRIEF-P: Executive Function Skills

- The Kindness Curriculum showed positive impact on children's executive function skills including working memory, shifting attention, emotional control, planning/organizing & mental flexibility.
- While lower SES & new children tended to start the year with lower metacognitive skills, including working memory & planning & organizing, all groups improved significantly. Lower SES children showed greater improvement in working memory & planning skills than higher SES children. Similarly, new children caught up with continuing children in these same areas by spring.



Highlights of Year 2 Findings on Cognitive & Academic Impact

TS Gold

- On all four TS-Gold outcomes (cognitive, literacy, math, & physical skills), children with higher SES & those continuing in the programs, tended to do better. However, improvement rates were very high for all groups. In fact, lower SES children improved at higher rates (93.7%), than those children in the control group (89.4%) in year 1.
- As expected, 4K children performed better in all four areas than preschoolers. However, both age groups improved significantly, & about 95% of preschoolers improved on math & cognitive skills.

Report Cards

- Report cards were only done in January after the first semester due to the pandemic. In January, grades were higher on math & language arts for children continuing in the programs & for higher SES children
- Girls & boys performed similarly on report cards—no significant differences.

Considerations When Interpreting the Findings

- Teachers new to the Kindness Curriculum (KC) received mindfulness training in June, about four months before beginning the Kindness Curriculum. Teachers continuing with the KC received a booster session in fall. All teachers were offered support from the mindfulness coaches. All classrooms received the KC in year 2, so our comparison groups before & after the KC are between: age, socioeconomic status, gender, & whether children were continuing in the agencies or new.
- All agencies that participated in the Kindness Project already had high-quality programming & many used the **Pyramid Model for Supporting Social Emotional Competence** (Fox et al., 2009), yet comparisons before & after the **Kindness training** suggest **added benefits of the KC**.
- Teachers were encouraged to develop **their own mindfulness practices**, as regular practice is integral to building one's mindfulness skills & integrating them into one's daily activities, such as teaching.
- The COVID-19 pandemic hit in early 2020, leading to school closures in March 2020. Thankfully, all agencies, except the one serving recent immigrants, completed the KC prior to closures. Teachers did all post-KC measures except Spring report cards. Individual testing with children on the card

sort task (& two social tasks) was not done in spring due to closures.

Key Takeaways from Year 2 of the Kindness Project

After receiving the Kindness Curriculum (KC), children of both lower & higher socioeconomic status as well as children in both preschool (3-4 years) & 4K (4-5 years) showed improvement in:

- Executive Function: working memory, shifting attention, emotional control, planning/organizing & mental flexibility.
- Physical Skills: Improved physical health & development related to physical activity
- Cognitive Skills, particularly in Language, Cognitive, Literacy, & Math assessments.
- Children continuing in the programs tended to do better than new children, although new children caught up in some areas by spring. These results suggest that more exposure to high-quality programming, like the KC, benefits children.

The results also suggest that children, as young as 3-years-old, can positively benefit from the mindfulness-based Kindness Curriculum.



Future Implications

- Results showed that the **Kindness Curriculum (KC)** had positive impacts on the cognitive, executive function, & academic skills of children, as well as social & emotional regulation skills as documented in the Social Outcomes report.
- Teachers were able to use the KC successfully even in **preschool classrooms**. That is, children as young as 3 years-old showed benefits from the Kindness Curriculum.
- Given the gains in cognitive, academic, & social skills, investing in mindfulness-based programs, such as the **Kindness Curriculum, is beneficial for young children** & should be implemented & carried out in pre-schools and 4K programs.
- Teachers find the KC to be **doable & beneficial** & see benefits in mindfulness practices for themselves & their students. They appreciate coaching support too!



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