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Final Survey Report

Section I: Introduction to the Topic

Mindfulness has been used as an educational tool for many years, with the aim of improving student's wellbeing. However, not much research has been done on the differing effects of mindfulness interventions on students of different demographics.

Mindfulness is defined in a 2017 study as "a nonjudgmental, non-elaborative awareness of the present moment, an awareness that allows for acknowledgement and acceptance of feelings, thoughts and sensations as they arise". Programs that teach children to be mindful in elementary education have been studied for a few years now. Mindful Schools, an organization that helps guide and connect educators who are incorporating mindfulness into their curriculum, has done research that has shown that mindfulness increases attention, compassion and self-compassion, and is associated with greater emotional regulation, and calms and reduces stress¹. A Garrison Institute report from 2004 suggested that mindfulness was easy for schools to implement, and was a great way to prime students for attention, and learning². One of the most robustly studied programs in a 2017 summary of research and support for 11 different mindfulness programs for

children was the *Stress Reduction and Mindfulness Curriculum* (SRMC). SRMC is taught in 45 minute classes that meet four times a week for 12 weeks, or twice a week for 24 weeks. It starts with a brief centering exercise, which is then followed by yoga or tai'chi, a group discussion, and closed with a mindfulness meditation. In 2010, four schools participated in a randomized controlled trial (n= 97 4th and 5th grade students) that found significant improvements in several scales for wellbeing. This study only controlled for age, gender and baseline scores³. The 2017 summary concluded that “we simply do not know which of these programs (or their varying components) is effective, for whom, how, or why.” They also noted the lack of randomized controlled trials, and the lack of research conducted independent of program developers.

This is where my research fits in. My research will build on these previous studies by including SES, and racial backgrounds. What are the effects of mindfulness interventions for students with different racial, gender, and/or socio-economic backgrounds? Do mindfulness programs have similar effects across these demographics? Or are they more/less effective? I intend to study the effects of mindfulness intervention programs on students in New York City schools across different racial, gender, and socio-economic backgrounds.

Section II: Target Population, Sampling, and Study Design

My research will consist of two surveys. The survey will be given to two groups of children - one that will receive their school's implementation of some mindfulness curriculum and another that will not be given any additional training. The survey will then be administered twice – once before the mindfulness curriculum begins, and once after it concludes– or after 12-weeks without additional intervention.

My target population is elementary school students across the United States in 2020. My sampling frame begins with a list of public schools in New York State from the Department of Education. Then each of these schools will be emailed, called, and mailed to see if they have a partnership with a mindfulness program, and if they'd be willing to participate in our study in March of 2020, for the study to begin in September of 2020. Those who do have a mindfulness program will help us build our 'treatment' frame, and those that don't our 'control' frame. This study will only be sampling from 3rd to 5th grade students.

A proportionate stratified random sample of these schools will be chosen from these lists. They will be stratified by SES, which will be measured by the percent of students in the school with free or reduced lunches (data provided by DOE). The data will be clustered on the classroom level in a single-stage cluster sample. Proportionate allocation will be used. To help with any overlap issues, classrooms that don't receive mindfulness training from schools in our 'treatment' frame will be asked to be part of our 'control' sample as needed. A roster of students will be provided by each school that decides to participate.

I chose SES and urbanicity for stratification because they can have large impacts on the overall environment of an education system. Low SES schools will see situations that wealthy public schools would be less likely to see, and vice versa.

My plan will only be able to cover New York State. Because of this, my sample will be biased in terms of urbanicity, as there are much less schools in rural New York than there are in New York City. I am only choosing schools that already have a mindfulness curriculum, which might bias my sample to schools that have the resources or opportunity to implement such a curriculum. This may make it harder to capture the effect of mindfulness curriculums across a

range of socio-economic backgrounds. My sample will only consider classrooms that want to participate in the study, so this could lead to some bias towards classrooms that can handle the intervention of a study. For example, overworked classrooms, or those that have the stress of severe behavioral issues may be less likely to participate in this study due to increased work load. My sampling scheme may bias my study. By only choosing schools that already have a mindfulness based curriculum, I am introducing a type of self-selection bias, which means that my conclusions won't be as strong as they would if I had assigned treatment randomly. There will also be some sampling variance across schools, although proportionate allocation will reduce it by some.

At the beginning of the school year, September 2020, before children have been exposed to the mindfulness treatment, a hard-copy, self-administered questionnaire will be distributed by the teacher to the students of their classroom. Teachers of the classroom will be responsible for printing, distributing, and collecting the survey. Members of the research team will collect the surveys across schools, and consolidate them. After the mindfulness curriculum concludes for that school, or after 12 weeks without any additional intervention, the survey will be administered again in the same manner.

Section III: Measurement

A mindfulness program is an organization with resources and staff that has some planned curriculum that lasts 4 weeks or more, that is not part of the core curriculum of the school, but is free for the children, that supports concentrated in-person instruction to the children at a dedicated time during the school day. So, mindfulness techniques given to teachers to use for classroom management would not count, because mindfulness is not being taught at

a dedicated time. Mindfulness classes online also would not count, nor would mindfulness programs that students join voluntarily after school. Examples of programs that would be considered 'mindfulness curriculum' were seen in the Semple paper, and included *Stress Reduction and Mindfulness Curriculum*, *Inner Explorer*, *Master Mind* and *Moment Program*⁴.

My experimental study will be longitudinal. It will consist of two surveys. The survey will be given to two groups of children - one that will receive their school's implementation of a Mindfulness Curriculum, (SRMC) and another that will not be given any additional training. The survey will then be administered twice – once before the 12-week treatment begins, and once after.

At the beginning of the school year, before children have been exposed to the mindfulness treatment, a hard-copy, self-administered questionnaire will be distributed by the teacher to the students of their classroom. Teachers of the classroom will be responsible for printing, distributing, and collecting the survey. They will also be responsible for reading the preamble to their class. Members of the research team will collect the surveys across schools, and consolidate them. After the curriculum concludes, or after 12 weeks without any additional intervention, the survey will be administered again in the same manner.

I will be measuring 'effect' in four constructs – mindfulness, attention, compassion and self-compassion. I intend to study the effects of the Stress Reduction and Mindfulness Curriculum on elementary students in NYC across different racial, gender, and socio-economic backgrounds in 2020. The bulk of my survey will measure levels of mindfulness itself. This is important, because it will show if the intervention is effective across different groups of students. This part of my survey is the Child and Adolescent Mindfulness Measure (CAMM)⁵.

To score, first reverse all scores by changing 0 to 4, 1 to 3, 3 to 1, and 4 to 0 (2 stays unchanged).

Then sum all items. Lower scores correspond to higher levels of mindfulness.

Attention Questions: These questions are measuring how well a student can focus in class. These are important because mindfulness has been shown, in some cases, to improve attention. I'd like to see what the effects of this are across different groups of students.

Questions	Never True	Rarely True	Sometimes True	Often True	Always True
When other students talk, I listen	0	1	2	3	4
I follow my teacher's directions the first time	0	1	2	3	4
I stay on task	0	1	2	3	4

Compassion Questions: some questions pulled from Empathy Formative Questionnaire⁶. They measure how compassionate a student is towards others. Compassion is shown to help with emotional self-regulation, and sense of connection. Mindfulness has been shown to increase compassion. I'd like to see what the effects of this are across different groups of students.

Questions	Never True	Rarely True	Sometimes True	Often True	Always True
I speak to other students in a kind way	0	1	2	3	4
When a friend is upset, I try to show them that I understand how they feel	0	1	2	3	4
I try to imagine how I would feel in someone else's situation	0	1	2	3	4

Self-Compassion: some questions pulled from the Self-Compassion Scale⁷. The questions adapted from the Neff Self-Compassion Scale are measuring self-kindness, self-judgement and

common humanity- all of which are aspects of self-compassion. Mindfulness has been shown to increase self-compassion, I'd like to see what the effects of this are across different groups of students.

Questions	Never True	Rarely True	Sometimes True	Often True	Always True
I try to be patient and understanding towards the parts of me that I don't like	0	1	2	3	4
When I'm going through a hard time, I give myself the caring and tenderness I need	0	1	2	3	4
When I'm feeling upset, I remind myself that everyone feels upset sometimes	0	1	2	3	4

To decrease speeding, I will be mixing these questions together. I do not anticipate any issues with social desirability bias that I can address, or with other types of measurement error.

Section IV: What's Changed

In my first usability test with Lauraly, I quickly learned from watching her take the test that my font size was too tiny. Similarly, on my second usability test, I noticed that the circles my review drew around the numbers on my survey were too small for an elementary schooler to be able to handle. My third usability tester led me to change the wording of one of my self-compassion questions. It used to say "When I'm going through a hard time, I give myself the caring and tenderness I need". Shannon giggled at the word 'tenderness', so I decided to change it to 'kindness'.

Andy allowed me to do a cognitive interview with him, and he gave me good advice on the order of the questions. Because the questions are very intense, he suggested that I switch their order and start with something less so. He also wondered if people would see your answers, so I included something in the teacher preamble so that it's clear to the children that no one but the research team would read the answers. In a concurrent think-aloud and cognitive interview with Hong Ting, she pointed out that the wording of one of my questions was unclear. It used to say "I follow my teacher's directions the first time". I changed it so it now says "I follow my teacher's directions the first time they are asked. My last cognitive interview was also concerned about privacy, and was wondering if it was possible to switch the order of the questions, or add some filler questions. I have opted to switch the order of the questions, rather than add filler.

My peer reviewers, Kristen and Kristen, were both very helpful. Both were concerned with reading level, and after consideration I've decided to change my survey so that it only samples 3rd -5th graders. Some of the questions and concepts would not translate to younger students at lower reading levels. Kristen W suggested that I work with control and treatment mismatch on my sampling plan by including classrooms in 'treatment' schools that haven't received the curriculum yet. I revised my sampling plan to include this, because I think it's a smart way to compensate for mismatch. She also suggested that I add some categories to the metadata, so that the write-in at the top isn't too open-ended, and that I mix the questions together to reduce speeding. I've taken these suggestions. Kristen G and Daphna both suggested that I make the student pre-amble a bit more 'kid friendly', which I've considered in my final draft. Daphna also mentioned that I need to incorporate a parent consent form, which I included in my final draft.

Section V: Future Steps

Overall, this survey will help us understand how mindfulness curricula effect different people in different settings. This will help us assess if mindfulness is delivering on its promise, and if it's truly serving the needs of the students. If I were to conduct this survey in real life, I would do extensive pretesting with kids in my age-range (8 -11 years of age) to make sure it is comprehensive and appropriate. I would also partner with teachers and do a pilot study to understand if the survey administration method is effective. Going forward, I would also be interested in controlling for different mindfulness curriculum types, or mindfulness programs. After defining my sample, I would research each mindfulness program within the treatment group to determine the best predictor to capture meaningful differences between these curricula. I would also like to expand this survey outside of New York State, and expand my survey so that I have more than 3 questions each for the constructs of attention, compassion and self-compassion.

APPENDIX

Preamble - for the Teacher

Please read this page before you hand out the parent consent form and survey to your students.

A parental consent form and “kid-friendly” preamble is provided below for them to read along with you before the start of the survey.

You have been invited to take part in a research study about the role of mindfulness in education.

This study will be conducted by Steinhardt School of Culture, Education, and Human

Development, New York University. Her faculty sponsor is Professor Daphna Harel, Steinhardt School of Culture, Education, and Human Development, New York University.

If you agree to be in this study, you will be asked to lead your class to complete a survey about their experiences. The survey will be about 10 minutes of your time.

There are no known risks associated with participation in this research, but they may experience discomfort when answering personal questions. Although they will receive no direct benefits, this research may help the investigators understand important relationships between mindfulness interventions and student outcomes.

Confidentiality of your records will be strictly maintained. All information from this study will be stored on secure, password-protected servers with limited staff access. Information will not be used for any purposes outside of this study.

Participation in this study is voluntary. Students have the right to skip questions they do not want to answer. They may refuse to participate or withdraw at any time without penalty.

If you have questions about the study or your participation, or you wish to report a research-related problem, you may contact Jessica Spencer at js10564@nyu.edu, 23 East 10th Street. For questions about your rights as a research participant, contact the Institutional Review Board (IRB) University Committee on Activities Involving Human Subjects (UCAIHS), New York University, 665 Broadway, Suite 804, New York, New York, 10012. You may email (ask.humansubjects@nyu.edu) or call UCAIHS at (212) 998-4808. Please reference the study number (IRB-FY2019-####) when contacting the IRB.

If you would like to lead your class to participate in this study, sign below to begin the survey (OR PRESS THE CHECKBOX IF A WEB SURVEY). Remember, your participation is completely voluntary, and you're free to withdraw at any time.

The next page contains the parent consent form. Please distribute to kids to bring home to their parents, and only then only give the survey to students who have received their parents written consent.

The following page contains the Kid-Friendly Preamble and Survey. Please print out these pages and distribute them to your students. The preamble should be *read aloud* in the front of the class, and any questions about the survey can be discussed then. After reading the survey and discussing any questions the students have about the preamble, the survey should

be completed quietly and independently. Participants cannot talk about the questions with each other.

Mindfulness Research: Parental Consent Form.

Your student has been invited to take part in a research study about the role of mindfulness in education. This study will be conducted by Steinhardt School of Culture, Education, and Human Development, New York University. Her faculty sponsor is Professor Daphna Harel, Steinhardt School of Culture, Education, and Human Development, New York University.

If you agree to allow your child to be in this study, they will be asked to complete a survey about their experiences.

There are no known risks associated with participation in this research, but they may experience discomfort when answering personal questions. Although they will receive no direct benefits, this research may help the investigators understand important relationships between mindfulness interventions and student outcomes.

Confidentiality of your records will be strictly maintained. All information from this study will be stored on secure, password-protected servers with limited staff access. Information will not be used for any purposes outside of this study.

Participation in this study is voluntary. Students have the right to skip questions they do not want to answer. They may refuse to participate or withdraw at any time without penalty.

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I, _____, being the parent or guardian of _____, consent to their participation in the Mindfulness Research Study.

Signature

Date

Mindfulness Research

Welcome!

You have been invited to take part in a research study about the role of mindfulness in education!

If you agree to be in this study, please complete the following survey, which will take about 10 minutes of your time. If you don't want to be a part of the study, you don't have to be. There's nothing risky about this research – all your information will be kept private and confidential.

Only our researchers will be able to look at it. Your teachers and parents will not see what you write here. However, some of the questions we ask might make you feel a bit uncomfortable.

You can skip any questions that you do not want to answer. If you have any questions, ask your teacher, and if they don't know the answer, they can contact us for you.

If you'd like to participate, please sign or write your name on the line below

Go to the next page to start the survey →

Survey

Name: _____

Age: _____

School: _____

Grade: Please circle the correct answer:

I am in the- 3rd grade 4th grade 5th grade

Race: Please circle that describes you best:

White Black Hispanic Asian Native or Indigenous

If none of these categories describe you well, then you can write your race on the line:

Turn the page to continue →

We want to know what you think, how you feel, and what you do. *Read* each sentence. Then, circle the number that tells us how often each sentence is true for you.

Questions	Never	Rarely	Sometimes	Often	Always
	True	True	True	True	True
When I'm going through a hard time, I give myself the caring and kindness I need	0	1	2	3	4
When other students talk, I listen	0	1	2	3	4
When I'm feeling upset, I remind myself that everyone feels upset sometimes	0	1	2	3	4
I follow my teacher's directions the first time they are asked	0	1	2	3	4
When a friend is upset, I try to show them that I understand how they feel	0	1	2	3	4
I speak to other students in a kind way	0	1	2	3	4
I stay on task	0	1	2	3	4
I try to imagine how I would feel in someone else's situation	0	1	2	3	4
I try to be patient and understanding towards the parts of me that I don't like	0	1	2	3	4

We want to know more about what you think, how you feel, and what you do. **Read** each sentence. Then, circle the number that tells **how often** each sentence is true for you.

	Never True	Rarely True	Some- times True	Often True	Always True
1. I get upset with myself for having feelings that don't make sense.	0	1	2	3	4
2. At school, I walk from class to class without noticing what I'm doing.	0	1	2	3	4
3. I keep myself busy so I don't notice my thoughts or feelings.	0	1	2	3	4
4. I tell myself that I shouldn't feel the way I'm feeling.	0	1	2	3	4
5. I push away thoughts that I don't like.	0	1	2	3	4
6. It's hard for me to pay attention to only one thing at a time.	0	1	2	3	4
7. I get upset with myself for having certain thoughts.	0	1	2	3	4
8. I think about things that have happened in the past instead of thinking about things that are happening right now.	0	1	2	3	4
9. I think that some of my feelings are bad and that I shouldn't have them.	0	1	2	3	4
10. I stop myself from having feelings that I don't like.	0	1	2	3	4

Once you complete the survey, make sure it's collected by your teacher.

Thank you so much for participating in our research!

- ¹ "Research on Mindfulness." *Mindful Schools*, 24 Mar. 2017, www.mindfulschools.org/about-mindfulness/research/.
- ² Semple, Randye J, et al. "MINDFULNESS GOES TO SCHOOL: THINGS LEARNED (SO FAR) FROM RESEARCH AND REAL-WORLD EXPERIENCES." *Psychology in the Schools*, U.S. National Library of Medicine, Jan. 2017, www.ncbi.nlm.nih.gov/pmc/articles/PMC5405439/.
- ³ [Mendelson, T.](#), [K. Dariotis, J.](#), [Feagans Gould, L.](#), [S.R. Smith, A.](#), [A. Smith, A.](#), [A. Gonzalez, A.](#) and [T. Greenberg, M.](#) (2013), "Implementing mindfulness and yoga in urban schools: a community-academic partnership", *Journal of Children's Services*, Vol. 8 No. 4, pp. 276-291. <https://doi.org/10.1108/JCS-07-2013-0024>
- ⁴ *ibid.*
- ⁵ Greco, L., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the child and adolescent mindfulness measure (CAMM). *Psychological Assessment*, 23, 606-614.
- ⁶ Gaumer Erickson, A.S., Soukup, J.H., Noonan, P.M., & McGurn, L. (2015). Empathy formative questionnaire [Measurement instrument]. Retrieved from <http://www.researchcollaboration.org/uploads/EmpathyQuestionnaireInfo.pdf>
- ⁷ Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology & Psychotherapy*. 18, 250-255.