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L.A.U.G.H.™ Time @ Madrona Elementary

Year 2 Research Report

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STUDY QUESTION

Can an art-based mindfulness intervention change a student's sense of belonging, joy of learning, and/or mood state at school?

L.A.U.G.H. PARTICIPANTS

> **N= 243 students (kindergarten-5th grade)**

> **Gender (48.6% male, 50.6% female, <.4% non-binary)**

> **Racially diverse**

>> **39.5% African American**

>> **36.6% White/ European**

>> **6.2% Latinx**

>> **2.5% Asian/ Pacific Islander**
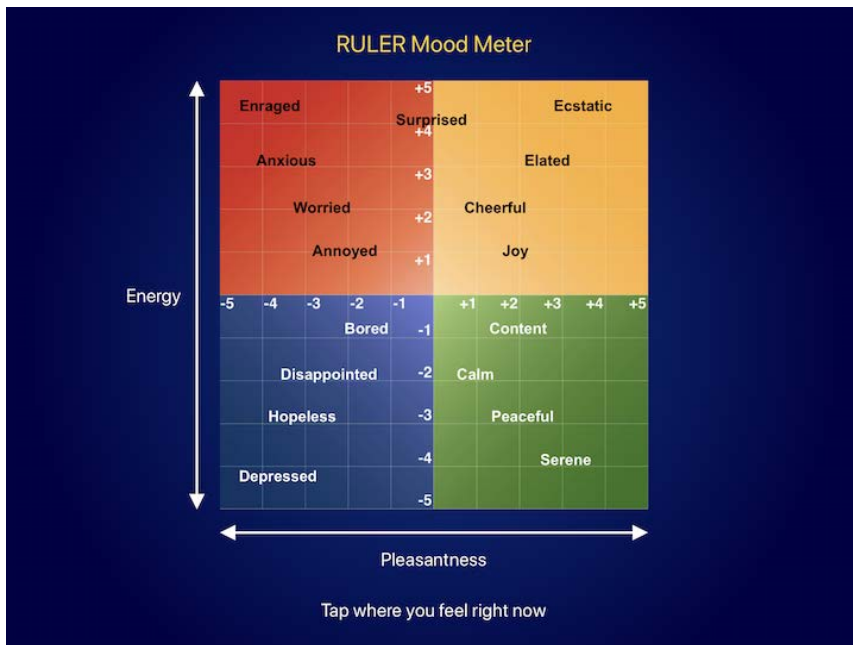
>> **13.6% Mixed Race**

PROJECT OVERVIEW

Mindfulness, the practice of intentional, sustained, and non-judgmental attention to the present moment (Black & Fernando, 2013), is a skill that can be taught to children and adults with numerous demonstrated and potential benefits. Mindfulness is a psychological and behavioral approach to attend and actively respond to the environment. By gathering information through all of the senses and reflecting on experiences without judgment, individuals practicing mindfulness may regulate their emotional responses and address conflicts with creative and flexible problem-solving strategies (Albrecht, Albrecht, & Cohen, 2012; Black & Fernando, 2013).

When implemented in classrooms, school-based mindfulness programs have been shown to increase and enhance school engagement, classroom management and participation, prosocial behaviors, attentional control, and awareness and use of social and coping skills to solve problems (Black & Fernando, 2013; Felver, Celis-de Hoyos, Tezanos, & Singh, 2015; Klatt, Harpster, Browne, White, & Case-Smith, 2013). Mindfulness practices also decrease anxiety, depression, anger/aggression, and non-compliant behavior. At the same time, mindfulness increases empathy, self-control, self-satisfaction, attention, emotion regulation and healthier interpersonal relationships.

> Using an iPad application by The Catherine Mayer Foundation called L.A.U.G.H.™ (Let Art Unleash Great Happiness) for 20 minutes, once per week, the primary goal of L.A.U.G.H.™ Time was to investigate the impact of an art-based approach to mindfulness that is delivered through technology in the classroom.

> Within the app, students did mindful breathing, created digital art, and completed a RULER mood meter (Emotionally Intelligent Schools, 2008) to indicate their current emotional state. Additionally, at the end of L.A.U.G.H.™ Time, students answer 8 questions about how they felt about learning (e.g., "I feel happy when I am working and learning at school") and how connected they felt to school (e.g., "I feel like I belong at this school").

> By the end of the school year (October 2018- May 2019), students completed an average of 7.6 sessions of L.A.U.G.H.™ Time and created more than 4,000 works of art that were displayed as AmbientArt ™ on screens in each classroom and the school cafeteria.

YEAR 2 STUDY OF L.A.U.G.H.™ Time

During year 2 of the L.A.U.G.H.™ Time project at Madrona Elementary School, students participated in L.A.U.G.H.™ Time once per week as part of the time allotted for the implementation of a socio-emotional learning curriculum called RULER. RULER stands for Recognizing, Understanding, Labeling, Expressing, and Regulating emotion (Hagelskamp, Brackett, Rivers, & Salovey, 2013). Since teachers had integrated RULER into their curriculum, the mindfulness practices within the L.A.U.G.H.™ app were aligned with the RULER objectives, vocabulary, and socio-emotional learning instruction. To accomplish this, a special version of the L.A.U.G.H.™ app was developed for Madrona Elementary students that included a modified version of the RULER mood meter that students could use to identify their current mood states. The mood meter includes four color quadrants that identify the student's level of pleasantness and energy. Positive emotions are associated with high pleasantness. At the end of year 1, the teachers gave the research team feedback that students had different understandings of the meaning of the quadrants and did not have a strong recognition that there is a continuum of emotion within each quadrant. Thus, the research team adapted the mood meter differently for year 2 by including one that included written emotion words to help anchor students within the mood meter and provide more consistency across classrooms. The figure below shows the adapted Mood Meter that was programmed into the L.A.U.G.H.™ app for year 2.

In addition to the mood meter, the L.A.U.G.H.™ app included practicing mindful breathing, creating art, and sharing the work as AmbientArt™ (e.g., active digital formation of the student art) on television screens throughout the school. We anticipated that the breathing and art would not only impact a child's emotional state, but also how they feel about school. To learn about these connections, the L.A.U.G.H.™ app was modified to include two questionnaires that asked students to rate their feelings related to *joy of learning* and *school connectedness* using subscales from the Student's Subjective Wellbeing Questionnaire (Renshaw, Long, & Cook, 2015). The findings related to all three variables are noted in the study results below.

SAMPLE STUDENT COMMENTS

When I see my drawings:
"I feel good and content because mine is up there"

"I feel happy because I think of going somewhere"

"I feel happy because others can experience it"

"I feel proud because I put in effort to my drawings and it is good work"

When I breathe with Ambi:
" I feel relaxed and smile"

"I feel calm because I am feeling happier each breath"

"I feel calm, relaxed and content because it makes me feel my best self"

"I feel calm because I feel like I am in a different world"

When I draw in the L.A.U.G.H.™ app:
"I feel calm because when I breathe it helps me"

"I feel relaxed because there is no distracting"

"I feel joyful and pleasant because it is soothing"

"I feel proud because I like my drawing"

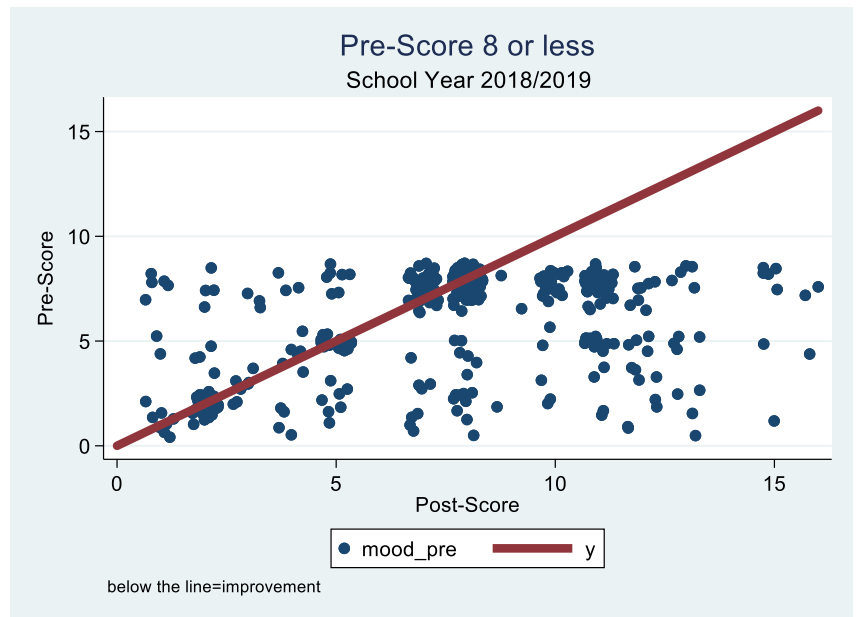" I feel pleasant because L.A.U.G.H.™ worked hard to do this for us and I love to draw"

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Year 2: Study Results

Mood Changes as a result of L.A.U.G.H.™ Time

Students completed the "mood meter" at the beginning and end of each instance of L.A.U.G.H.™ Time. To assess whether L.A.U.G.H.™ Time has an immediate impact on mood, we looked across all mood meter ratings before and after L.A.U.G.H.™ Time. There was no statistically significant difference between the proportions of ratings between the four quadrants, nor when comparing the half with positive emotions (yellow/green) to the half with negative emotions (red/blue). This suggests that there are no significant differences between mood meter selections immediately after L.A.U.G.H.™ Time. In general, across all instances of L.A.U.G.H.™ Time, most students selected one of the positive mood states before L.A.U.G.H.™ Time (79.5%) as well as after L.A.U.G.H.™ Time (78.7%). It is notable that the vast majority of the youth reported positive emotions at the beginning of each L.A.U.G.H.™ Time session, so there was not much room to improve in the 20 min time frame.

However, for youth that selected a negative emotion state at the beginning of L.A.U.G.H.™ Time sessions, there were significant improvements. In the figure to the right, each dot represents the combined pre- and post- mood meter score for an individual student. The larger the dot, there are more students clustered together in that location.

Scores that were 8 or below fell into one of the negative emotion quadrants (red/blue) and scores 9 and higher were in the positive emotion quadrants (yellow/green). We predicted that scores after L.A.U.G.H.™ Time would be higher, and possibly even shift from a negative quadrant to a positive quadrant. Scores below the red regression line indicate improvement in scores. As shown in the graph, a significantly greater proportion of students showed improved mood scores than those who were above the line.

Pre-Score 8 or less
School Year 2018/2019

below the line=improvement

The research team was particularly interested in the long-term effect of L.A.U.G.H.™ Time on a student's mood. To explore this question, we compared the average mood meter ratings from the first three sessions (October 2018) to the average of the last three sessions (May 2019) and found a **4.7% improvement (p<.01)**! Meaning, the more students interacted with the L.A.U.G.H.™ app, the more their moods improved. It is especially notable that only an average of 7.6 sessions of L.A.U.G.H.™Time was needed to produce this significant effect. Thus, the results are clear, once weekly sessions with the L.A.U.G.H.™ app have a significant impact on student moods over time.

School Connectedness and L.A.U.G.H.™ Time

To measure a student's sense of school belonging, students were asked four questions about how connected they feel at school. The questions were: 1) I feel like I belong at this school, 2) I can really be myself at this school, 3) I feel like people at this school care about me, and 4) I am treated with respect at this school. Students were able to select from four different "smiley" faces the degree to which they agree with the statements. When comparing the ratings of the first three sessions to the last three sessions of L.A.U.G.H.™ Time, we saw a small (.5% increase) but statistically significant difference between the first three days of L.A.U.G.H.™ Time and the final three days of L.A.U.G.H.™ Time (p<.01). This average increase in school connectedness score showed that **participating in L.A.U.G.H.™ Time and being exposed to the AmbientArt™ in the classroom produced a measurable increase in sense of belonging for students** over an 8-month period of time.

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When comparing the impact of L.A.U.G.H.™ Time on students by student demographics, there were no significant differences between groups based on gender. Thus, improvements in school connectedness were consistent across genders. However, when analyzing by grade level, we found that students in the 1st grade rated feelings of school connectedness significantly higher than all other grades (p<.0001, eta^2=.039). In terms of racial differences, we found that among the students in the school, Asian and Black/African American students had lower ratings of school connectedness than the other racial groups (p<.0001, eta^2=.022).

Joy of Learning and L.A.U.G.H.™ Time

Within the special version of the L.A.U.G.H.™ app, we asked students four questions about their joy of learning. The questions were to identify their level of excitement about learning new things in class, their level of interest in the things they are doing at school, their level of enjoyment with working on projects and assignments, and their degree of happiness when they are working and learning at school. When comparing their ratings from the first three sessions of L.A.U.G.H.™ Time to the last three sessions, the scores were not significantly different. Although the average score was higher by .1%, this was not statistically significant. This suggests that L.A.U.G.H.™ Time alone, was not enough of an intervention to significantly improve a child's joy of learning over an 8-month period.

When comparing the impact of L.A.U.G.H.™ Time on students by student demographics, there were no significant differences between groups based on gender, so the increases in joy of learning were consistent across genders. However, when analyzing by grade level, we found that **students in the 1st grade and the 3rd grade rated their feelings of joy of learning significantly higher than the other grade levels** (p<.0001, *eta*^{2}=.033). There were no statistically significant differences between racial groups on joy of learning, which suggests that student perceptions were relatively equal across racial groups.

How does a student's feelings about school affect their mood after L.A.U.G.H.™ Time?

Given the unique set of questions that we asked students during each L.A.U.G.H.™ session, we were able to explore the interaction effects between joy of learning, school connectedness, and a student's mood at school. These analyses led to the most powerful findings from year 2 of L.A.U.G.H.™ Time. Using binary logistic regression, we investigated the connections between joy of learning and a student's mood after L.A.U.G.H.™ Time. There was a statistically significant difference between positive and negative mood states after L.A.U.G.H.™ Time where the ***joy of learning*** score was 18.7% higher with students who **had a positive mood state at the end of L.A.U.G.H.™ Time** (p<.001, effect magnitude= .6533). There was a similar difference for ***school connectedness* where scores were 19.2% higher for students with a positive mood state at the end of L.A.U.G.H.™ Time** (p<.001, effect magnitude= .6434). As joy of learning and school connectedness increased, there was a statistically greater chance of having a positive mood after L.A.U.G.H.™ Time. We also explored the ways in which school connectedness and joy of learning influenced each other. We found a positive relationship between these variables where both incrementally increased along with L.A.U.G.H.™ participation. Specifically, **as school belonging increased by one standard deviation, joy of learning also increased by 56%.** This is especially important since joy of learning did not have a direct relationship with participation in L.A.U.G.H.™ Time alone. This finding indicates that school connectedness (or belonging) directly affects joy of learning and *together*, they have an impact on a student's mood.

Conclusion

Research has already shown that mindfulness practices decrease stress and increase empathy, self-control, self-satisfaction, attention, emotional regulation, and healthier friendships. Our research is showing the link between art, creativity, and these same socio-emotional skills. Both our pilot study, and now our schoolwide intervention study show how the art-based mindfulness in the L.A.U.G.H.™ app provides benefits to students by using multiple senses at the same time including: vision (images on the app and the AmbientArt™ on the screens), tactile (digitally painting), listening (calming sounds and positive self-talk), and focused breathing (physical regulation). We have found that this powerful combination is creating an optimal opportunity for learning, belonging, and improving a student's mood at school.

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