UNIVERSITY of WASHINGTON

L.A.U.G.H.® Time @ Madrona

Year 1 Research Report

STUDY QUESTION

Can teachers increase socioemotional well-being and cultivate resilience in their students with technology, art, and mindfulness in the classroom?

L.A.U.G.H. PARTICIPANTS

- N= 81 students (45 in 2nd grade; 36 in 3rd grade)
- Gender (50% male, 49% female, 1% non-binary)
- Racially diverse
  - 36% African American
  - 12% African/Black Caribbean
  - 29% White/ European
  - 6% Latinx
  - 4% Asian/ Pacific Islander
  - 5% 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, two mornings 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 used a RULER mood meter 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").

> During L.A.U.G.H.® time, researchers observed the children in the classroom to collect data on engagement within L.A.U.G.H.® time.

> By the end of the pilot project (September 2017-June 2018), most students completed between 30-50 sessions of L.A.U.G.H.® time and created more than 12,000 works of art that was displayed as AmbientArt ® on screens in each classroom and the school cafeteria.

ENGAGEMENT IN L.A.U.G.H. TIME

School engagement was a primary outcome indicator that was being investigated as part of the L.A.U.G.H.® time study. The team measured school engagement within the L.A.U.G.H.® app, and during Phase I, through direct observation of students during L.A.U.G.H.® time. The research team collected data twice a week throughout Phase I of the project to determine the degree that participants were remaining engaged in the L.A.U.G.H.® time. The team observed small groups of students in 30 second intervals to record incidents of off-task behavior that last 10 seconds or more. Behaviors considered off-task were: not using headphones, looking away from the iPad screen, talking to other students, ignoring the app during mindful breathing (and not breathing along), or leaving their desk. During the first 10 weeks of L.A.U.G.H.® time, the average level of student engagement was 95.6%.

THE AVERAGE LEVEL OF STUDENT ENGAGMENT DURING L.A.U.G.H.® TIME WAS HIGH:

95.6%

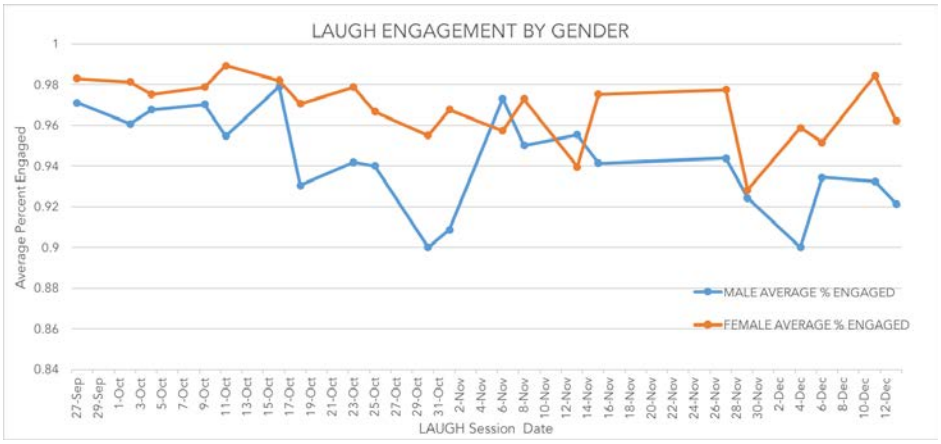
QUICK FACTS ON L.A.U.G.H.® TIME ENGAGEMENT

- > Students completed 10 ½ hours of L.A.U.G.H.® time in Phase I
- > Girls engaged in L.A.U.G.H.® time 97% of the time while boys engaged 94% of the time.
- > Racial differences in levels of engagement were present:
  - > African American (96%), White (96%) and Asian (98%) students were the most engaged in L.A.U.G.H.® time
  - > Latinx students were the least engaged (91% of the time).
  - > African students engaged 93% of the time and mixed race students were 92% of the time.

DIFFERENCES BY GENDER

When considering levels of engagement by gender, and interesting pattern was present. The average level of **engagement for females was 96.8%** whereas for **males, average engagement was 94.2%.** As shown in figure 1, over time, there was a slight decline in L.A.U.G.H.® time engagement with girls until around week 5. A similar pattern was present for boys, but the decline was faster and more severe down to a low of 90% engagement. However, a notable change occurred around week 5. On November 1st, the L.A.U.G.H.® app was updated to include new sample images for students to use as inspiration for their art. Upon this discovery, there was significant excitement in the classroom (observed by the research team and also reported by the teachers). This update seemed to maintain engagement for girls, however, after a few weeks, boy's engagement began to decline again.

FIGURE 1.



ENGAGEMENT PATTERNS BY RACE AND GENDER

A few interesting patterns were apparent when considering the intersectionality of race and gender during the first 10 weeks of LAUGH time. The highest levels of observed engagement with L.A.U.G.H.® time were with the Asian and Mixed Race Girls (both at 98% engagement). The next highest included African American and White/European girls (both at 97% engagement). African girls engaged 95% of the time while Latinas engaged 84% of the time. The pattern was different for boys. The highest level of engagement was with White/European boys (95% engagement). African American, Latino, and African boys engaged with L.A.U.G.H.® time 94% of the time. The least engaged group in the boy's sample was the mixed race group who engaged 88% of the time. It appears that there was gender and race-based differential interest in art-based mindfulness.

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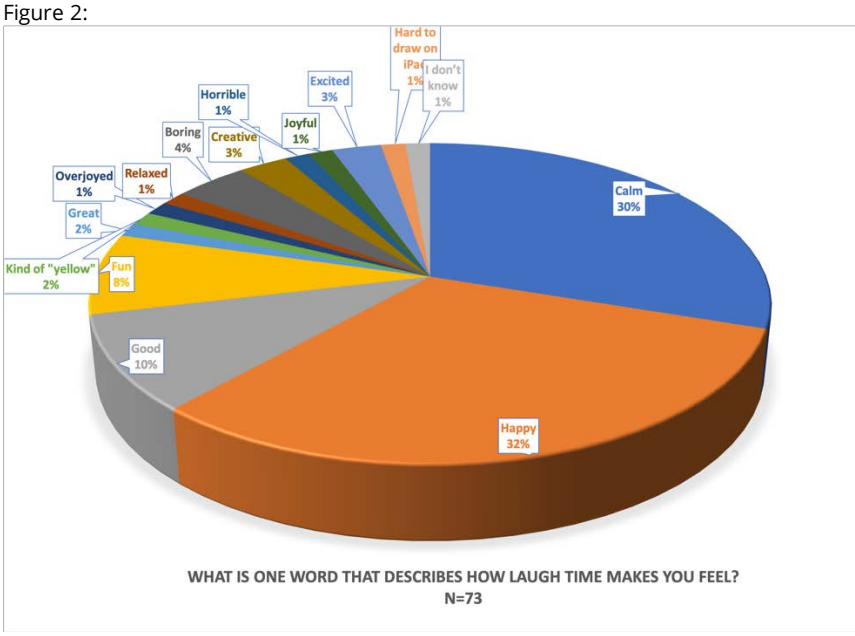
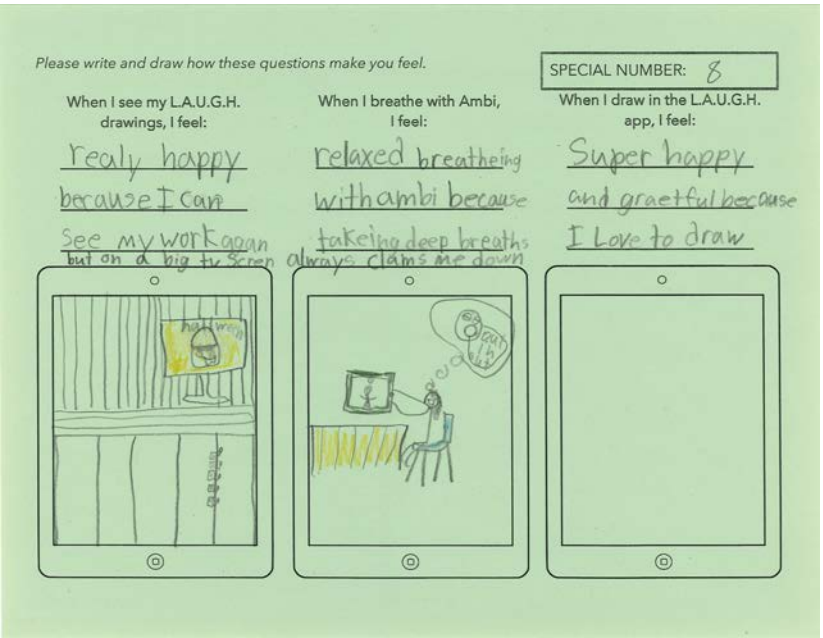
STUDENT FEEDBACK

To gain feedback from students, we used two approaches. The first approach was to ask them a question as they entered the classroom and selected their ipad. The students in the four classrooms were individually asked "what is one word to describe how LAUGH time makes you feel?" The responses were quite similar. 93% of the overall sample responded with a positive word while 5% responded with a negative word and 2% responded with a neutral response. The data is reflected in Figure 2.

Figure 2:



The second approach we used to gather feedback from students was through a paper survey that was distributed on a day that the research team was unavailable to co-facilitate LAUGH time. Students were given a paper questionnaire where they could write or draw a response to several questions. These related to how they felt about their AmbientArt™ and about breathing with Ambi. The image below (Figure 3) includes one students responses. Most children responded with a single word or two, but some wrote sentences of feedback. A sampling of those comments is on the right.



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 bored because it takes forever and I am not that good at breathing"

"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 I the LAUGH 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 LAUGH worked hard to do this for us and I love to draw"

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TEACHER FEEDBACK

During each L.A.U.G.H.® time session, research team members "checked-in" with teachers on how things were going in the classroom. If there were any issues or concerns, the team member took notes and brought the issue back to the principal investigator for problem solving during team meetings. In addition to these "check-ins" the team sent an (optional) online questionnaire to the four teachers. This questionnaire was sent out every six weeks to gain anonymous input from the teachers. The team designed questions that were similar to the joy of learning and school connectedness scales that the children completed. The questions in the teacher survey were as follows: 1) My students are excited about learning new things in class, 2) My students are calm when working and learning in class, 3) My students feel like they belong at school, 4) My students feel respected and cared for at school. Teachers response options were: *almost always, mostly, sometimes, and rarely*.

The October and December surveys showed that 50% of the teachers believed that their students are *almost always* excited about learning, and the other 50% are *mostly* excited. Figure 4 shows the teacher responses to whether students are calm in the classroom (e.g., 66% rated their class as *mostly*). Teacher ratings of student belonging were more variable (see figure 5). Eighty-three percent of teachers rated their students as *almost always* feeling respected and cared for while only 16% rated their students as *sometimes* feeling that way. The last question in the teacher survey was open ended and gave an opportunity to provide general feedback to the research team. The following were comments received from the survey with L.A.U.G.H.® time teachers.

4 TEACHERS AND 8 RESEARCHERS

CO-FACILITATE L.A.U.G.H. TIME AT MADRONA ELEMENTARY

Figure 4.

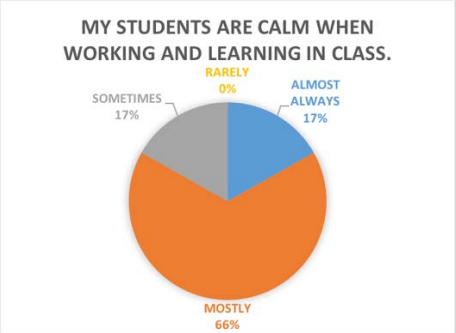
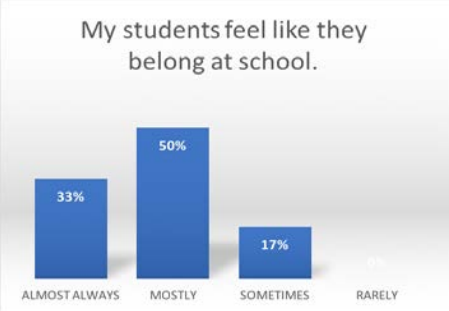


Figure 5.



COMMENTS ABOUT L.A.U.G.H.® TIME

"Students definitely enjoy L.A.U.G.H. time, especially drawing and creating on the iPads. I also think it is great that they have time and space to just focus on their breathing when they first walk in the classroom. It provides a dependable relaxed start to the school day, which helps to counteract the stress students might experience in the morning at home."

"Students really enjoy doing LAUGH Time! It is going well!"

"I prefer the mornings that we do LAUGH time because the kids are calmer and more engaged in the classroom."

"During our parent- student conferences, it was great to hear the kids describe what LAUGH time is like to their parents. They really enjoy it! They were especially excited about the new pictures on the iPads"

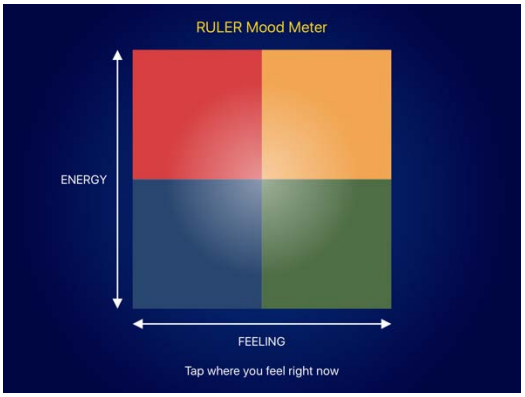
PHASE II Teacher Feedback

In the Spring, the teachers were asked to provide feedback in response to two new questions: 1) **Do students interact with their peers differently on LAUGH days vs. non-LAUGH days? If so, how?** And 2) **In general, how would you describe student behavior after LAUGH time on Mondays and Wednesdays? Is student behavior different on Tuesday, Thursday, and Friday?** These questions allowed for us to more deeply understand the impact of LAUGH time on student behavior based on the teacher's observations. In response to the first question, one teacher stated, *"I think students begin the day feeling much*

calmer due to LAUGH, but there are a lot of other factors that impact how they feel the rest of the day. There are some days where I notice them looking at the TV more to see the drawings, which seems to have a calming effect. Usually I catch them looking when we are at a lull in the day or when we are having a more relaxed day. Another teacher said, *"Students start their day calmly on LAUGH days so their interactions with peers are typically more calm and cooperative."* In response to the second question, one teacher said that student behavior is pretty similar every day. However, two of the other teachers noticed differences in student behavior. For example, one teacher said, "*I definitely think LAUGH time is a great routine for the morning. It is reliable and students miss it when it does not happen on a Monday or Tuesday (since they expect it). On the other days students aren't as sure what they are going to be doing, which can add stress to their morning. LAUGH time also provides a buffer for students who are late. This makes their start to the day less stressful as well, because they know they already know what to do when they arrive."* The other teacher indicated that mornings are different. She said, *"Our mornings run much smoother on LAUGH time. The students respond well to the structured routine and are more engaged than on other days. They also act calmer on those days as a result of LAUGH Time."* Thus, qualitatively, the overwhelming evidence supports the benefits of LAUGH time from the perspective of teachers and their students.

Year I: Study Results

During year 1 of the LAUGH time pilot study at Madrona Elementary School, the research protocols were developed and refined to meet the needs of the school. Students participated in LAUGH time twice 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 LAUGH app were aligned with the RULER objectives, vocabulary and socio-emotional learning instruction. To accomplish this, a special version of the LAUGH app was developed for Madrona Elementary students that included a 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 students level of pleasantness and energy.



In addition to the mood meter, the app included mindful breathing, creating art, and sharing the work as AmbientArt™ (e.g., active formation of the student art) on television screens throughout the school. After completing the second mood meter, students answered questions that asked about their *joy for learning* and *school connectedness*. Analyses of each of these variables show that over time, LAUGH time is making a difference for student learning. We have two key findings from the pilot study with 2nd and 3rd grade students at Madrona Elementary.

Mood Changes

As mentioned previously, students completed a "mood meter" before and after LAUGH time each instance that they interacted with the app. We explored the number of interactions each student had with LAUGH time and the patterns of changes in their mood and energy level over time. Using the number of sessions as an indicator of LAUGH time dosage, we found a clear effect over time. Meaning, the more students interacted with the LAUGH app, the more their moods improved. For example, fifty-three (53) students participated in LAUGH time for 40 sessions during the academic year. Those students showed a statistically significant increase in mood (1.43 points) by the final three sessions of LAUGH time ($p<.0001$). Similarly, 59 students received 35 sessions of LAUGH time and showed a significant increase in mood (1.30 points). The table below shows that the mood increases correlate directly with the increased contact with the LAUGH app:

Number of Sessions/ Dosage	Average increase in mood score	Significance level
45	+1.55 points	p<.0000
40	+1.43 points	p<.0001
35	+1.30 points	p<.0000
30	+1.26 points	p<.0000

Thus the results are clear, the more sessions with the LAUGH app, the greater the impact on student moods.

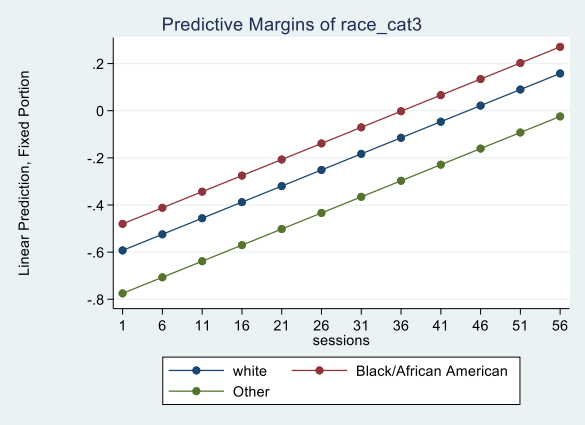
School Connectedness

Students were asked four questions about how connected they feel at school. There 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 LAUGH time, we saw a small, but statistically significant difference (Change coefficient .087, p<.005) between early days of LAUGH time and the final days of LAUGH time. To achieve a 1 standard deviation change in school connectedness score, it would take 136 sessions of LAUGH time. We suspect that the approaching end of the school year might have impacted the level of connectedness that students were experiencing in school. Even though the increase in school connectedness shown was small, we do recognize that the movement was in a positive direction.

Joy of Learning

Within the special version of the LAUGH 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 LAUGH time to the last three sessions, the results were similar to the mood changes—the more sessions of LAUGH, the greater the impact. For every 14 sessions of LAUGH time, student scores on the Joy of Learning scale increased by .72 points. those who interacted with the LAUGH app the most showed more than 1 standard deviation improvement in joy of learning scores (p<.05).

We also wanted to learning whether there were differential effects on learning based on gender and race. In terms of gender, female students tend to score slightly higher than male students on joy of learning (p<.03). For all racial groups, there is a clear linear growth trend where the more sessions of LAUGH time increases the joy of learning. African/African American students showed the highest average score for joy of learning at session 1, White students showed the next highest score and Latinx students showed the next highest score. This trend remained the same all the way through the academic year. This suggests that the LAUGH app is culturally appropriate for a diverse educational context.



Conclusion

Research has already shown that mindfulness practices decrease stress and increase empathy, self-control, self-satisfaction, attention, emotional regulation, and healthier friendships. What the research has not yet shown is the link between art, creativity, and these same socio-emotional skills. Our pilot study is among the first research studies to show how the art-based mindfulness in the LAUGH app provides even greater 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.

What's Next?

During the 2018-19 academic year, the LAUGH time program is being scaled up to a schoolwide program and offered to 267 students. The 2017-18 pilot program focused on the 2nd and 3rd grade in order to test the program with children of a similar developmental stage. This year, by expanding down to Kindergarten and up to the 5th grade, we will be able to determine the effectiveness of LAUGH time for ages 5-11 years old. We are also testing approaches to make the integration of LAUGH time self-sustainable in a school setting. Our hope is to validate the findings from the 80 student pilot study with younger and older students while building a sustainable program that can be offered in more schools as part of schoolwide socio-emotional learning programs.

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