

**LEANLAB**  
**EDUCATION**

# **SOWN TO GROW**

*Implementation and Correlational Findings*  
*Research Report*



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## **About LEANLAB Education**

LEANLAB Education is a nonprofit research organization that helps schools understand and solve their biggest problems. We listen to parents, educators, and students to help them pinpoint specific problems that hinder student achievement. Then, we match those schools with education entrepreneurs. Together, they develop the next generation classroom tools through research and direct, community feedback.

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## OVERVIEW

The purpose of this study was to identify and verify conditions of Sown to Grow implementation that would yield sustained engagement from teachers and students across different contexts. To that end, qualitative data was gathered from teachers and students at Gordon Parks Elementary School - an urban charter school in Kansas City, MO - and Clinton County R3 School District (CCR3) - a rural district north of Kansas City, MO. The study also collected quantitative data to assess the correlation between Sown to Grow usage and a) change in teacher perceived self-efficacy to teach SEL and b) change in two student SEL outcomes: self-awareness and self-management. Lastly, the study collected qualitative and quantitative data to assess the correlation between Sown to Grow usage and quality of teacher feedback and student reflections.

LEANLAB Education facilitated a co-design research process that included the voices of teachers, administrators, and parents from the school alongside the voices of the founders of Sown to Grow to develop the above research goals and processes of this study. The intent of co-design research is to elevate the voices of those most impacted by education tools being used in the classroom in order to help create a tool that is responsive to the needs of school communities and provide evidence-backed data to those responsible for adoption decisions.

This report first describes in more detail the research partners in this endeavor: Gordon Parks Elementary School, Clinton County R3 School District (CCR3), and Sown to Grow. It then summarizes the research methodology and outlines the key findings from the implementation and correlational design.

# Clinton County R3 School District



Clinton County is a place where kids can experience a wide range of activities and experiences. A place where students, staff and community work together towards a common goal of success in education.

### School Type

Public Rural District

### Schools

- Ellis Elementary School
- Clinton County R3 Middle School
- Plattsburg High School

### Location

Plattsburg, MO

### Grades K-12

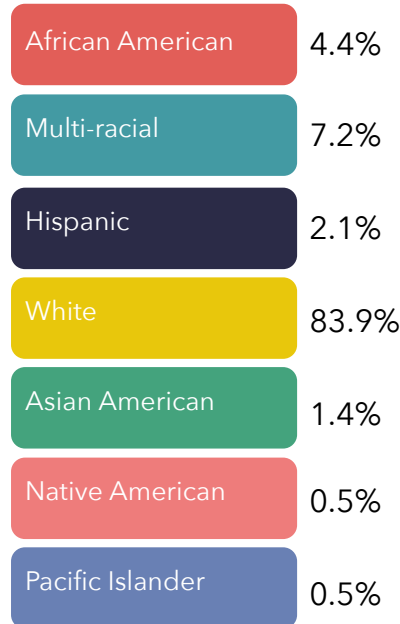
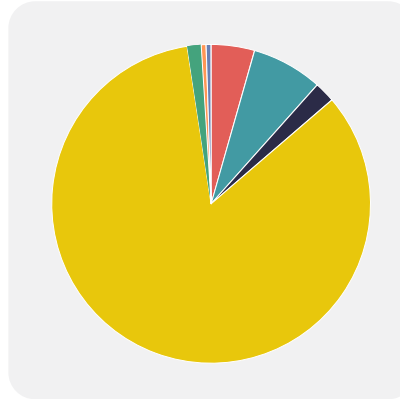
### Total Students

652

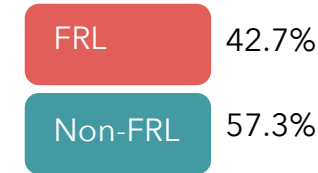
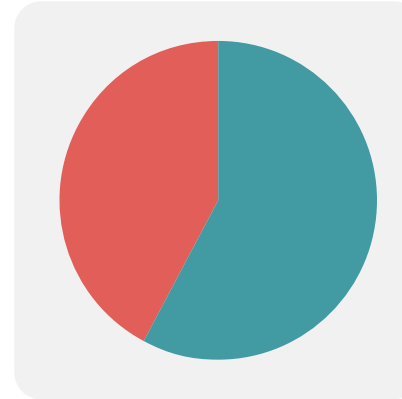
### Student : Teacher Ratio

12:1

### Race/Ethnicity



### Free & Reduced Lunch



# Gordon Parks Elementary



## Gordon Parks Elementary School

Acting on the conviction that every child has promise, Gordon Parks Elementary provides urban core children, including those who are at-risk, with an individualized education balanced to develop character, intellect, creativity and physical well-being.

### School Type

Public Urban Charter

### Location

Kansas City, MO

### Grades K-12

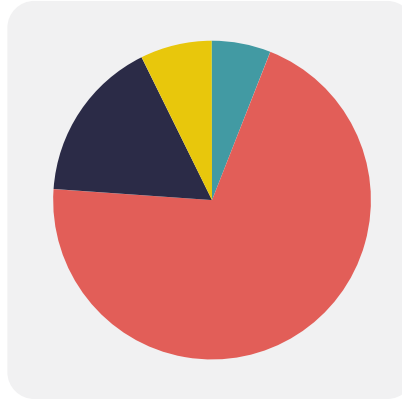
### Total Students

151

### Student : Teacher Ratio

8:1

Race/Ethnicity



African American 70.2%

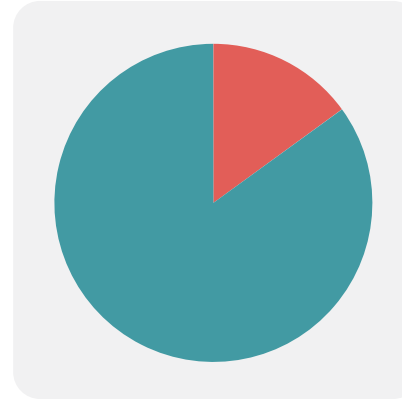
Multi-racial 6%

Hispanic 16.6%

White 7.3%

Asian American 0%

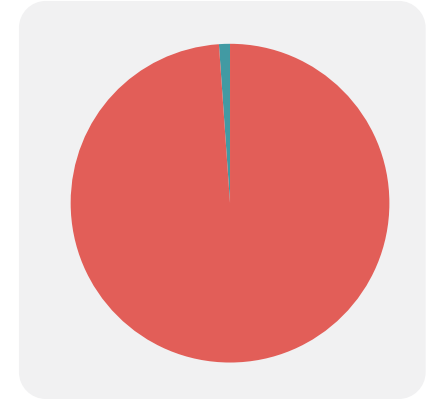
English Language Learners



ELL 15%

Non-ELL 85%

Free & Reduced Lunch



FRL 98%

Non-FRL 2%

3%

Receive Special Ed Services

# Sown To Grow

## Overview



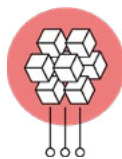
Sown to Grow is an online check-in and reflection platform for students to improve their social, emotional and academic health through goal-setting and tracking. Schools select pre-built modules for social-emotional learning, reflection and goal setting that are designed for users to engage with minimal support. Teachers, principals and counselors use data from the platform to understand and proactively support real-time student emotions, aided by learning strategy recommendations.

## History



Sown to Grow was founded in 2015 by Rupa Chandra Gupta, a former San José Unified School District Administrator of Redesign and Strategic Projects Manager, and Dennis Li a former San Jose Unified School District Administrator of Data Integration and Reporting. Before founding Sown to Grow, Rupa spent 9 years in management with Bain & Company, a global consultancy firm that supports international changemakers. She holds a BS from UC Berkeley, an MBA from Stanford University, and a Masters in Educational Leadership from The Broad Residency. Dennis holds a MPP and MS in Management Science and Engineering from Stanford University and a BS from Cornell University.

## Theory of Change



The theory of change behind Sown to Grow's technology revolves around an engaging reflection and feedback process between students, teachers and administrators to build better, more confident learners at their own pace. The platform allows students to set goals, track their progress, and reflect on the learning strategies that work best - or discover new strategies to try. Teachers and administrators are able to view and measure each student's journey over a given period, receiving personalized suggestions from the tool to support each student's progress.



Sown To Grow empowers schools to improve student social, emotional, and academic health through an easy reflection and feedback process.

### Solution Type

Curriculum

### Grade Level

K-12

### Subject

SEL

### Founders

Rupa Chandra Gupta, Dennis Li

### Location

Oakland, CA



# Research Questions

The following research questions emerged from the first collaborative research design meeting that included school administrators, teachers, and parents, the co-founders of Sown to Grow, and the research team from LEANLAB Education.

## Implementation Questions

- What conditions of use and ways of product implementation yield greater teacher and student engagement with the solution?
- What are the barriers to classroom implementation?
- What aspects of Sown to Grow add value for teachers and what features and/or functionalities should be added to provide additional utility to teachers and students?

## Correlational Questions

- What is the relationship between use of Sown to Grow and the following outcomes:
  - Student Outcomes:
    - Self-Awareness
    - Self-Management
    - Quality of Reflections
  - Teacher Outcomes:
    - Self-Efficacy
    - Quality of Feedback



# METHODOLOGY

# Sample

All teachers across Kindergarten to 5th grade (at GPES) and across Kindergarten to 12th grade (at CCR3) attended an overview and training session led by Sown to Grow in early January, and then they were then given the opportunity to

opt-in to the study or not. At GPES, 11 teachers opted in and, at CCR3, six teachers opted in. The table below summarizes teacher participant demographic data.

## *Teacher Participant Demographic Data*

Participant	Grade Level	Number of Students	Gender	Number of Years Teaching
Gordon Parks Elementary School				
<b>Mental Health Therapist</b>	All	--	Male	12
<b>Teacher A</b>	Kindergarten	9	Female	6
<b>Teacher B</b>	Kindergarten	9	Female	11
<b>Teacher C</b>	Kindergarten	10	Female	22
<b>Teacher D</b>	Kindergarten	--	Female	--
<b>Teacher E</b>	Resilience Coach/ Theatre Teacher	--	Male	23
<b>Teacher F</b>	Art Teacher	--	Female	9
<b>Teacher G</b>	2nd	10	Female	4
<b>Teacher H</b>	2nd	11	Male	2
<b>Teacher I</b>	3rd	9	Male	4
<b>Teacher J</b>	4th	9	Female	3

# Sample

*continued*

## *Teacher Participant Demographic Data*

Participant	Grade Level	Number of Students	Race	Number of Years Teaching
Clinton County R3 School District				
<b>Teacher K</b>	3rd	22	Female	8
<b>Teacher L</b>	4th-5th	59	Female	8
<b>Teacher M</b>	6th-7th	47	Male	6
<b>Teacher N</b>	8th	27	Male	2
<b>Teacher O</b>	9th-10th	37	Female	25
<b>Teacher P</b>	11th-12th	55	Female	10

**Total at Both Schools**

17 Teachers

314 Students

65% Female

# Learning Environment

Teachers at both schools began using Sown to Grow at the end of January in an in-person format, as both schools had returned to full-time in-person learning for the spring 2021 semester.

Due to a rise in COVID cases at GPES, students were sent home for a week in February during which Sown to Grow was not used.

# Data Collection & Measurement

## Implementation Design



The goal of the implementation study was to assess barriers to full teacher and student engagement and to identify ways of use that increased engagement. To that end, teachers were asked to use Sown to Grow with all their students for the full spring semester. Teachers took a 60-minute training session with the Sown to Grow team in early January that focused on the technical aspects of using Sown to Grow and its various features. The recommended use of Sown to Grow was 30 minutes every Friday morning, which consisted of time for students to self-select their “mood emoticon” and write reflections on that choice. Teachers were also given the option to use the SEL lessons provided by Sown to Grow each Friday as well.

# Data Collection & Measurement

*continued*



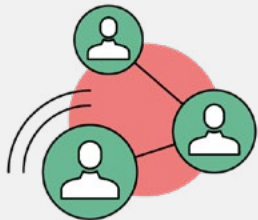
*Implementation Survey*

Implementation Survey (1): One survey was sent to teachers in the middle of February to solicit feedback on the training and onboarding process as well as to identify the features of Sown to Grow that teachers were using and with what frequency.



*Interviews with Teachers*

Interviews with Teachers (30 total): Two 30-minute, virtual interviews were conducted with each study participant in March and May respectively. The purpose of the interviews was to gain deeper insight into the ways teachers were using Sown to Grow with students and to identify the barriers and successes teachers were having with implementation. The time was also used to learn more about the perceived value-add of Sown to Grow and to solicit teacher feedback on product modifications. After the March interviews, the barriers were communicated to the Sown to Grow team to see if any small modifications based on feedback were possible so that any such iterations could be tested for in advance of the May interviews. All product modifications were, however, beyond the scope of the time remaining in the semester.



*Focus Groups with Students*

Focus Groups with Students (2 total): In the middle of May, one 30-minute focus group was conducted with students in 4th grade and another conducted with students in 6th-7th grade.. Each focus group had 3 students. The purpose of the student focus groups was to learn more about what students liked and disliked about Sown to Grow, to identify barriers to their engagement as well as things that increased their engagement, and to solicit their feedback on product modifications.

# Data Collection & Measurement

*continued*

## Implementation Design



The goal of the correlational study was to assess the relationship between usage of Sown to Grow and student/teacher outcomes. The following data collection methods were used for the respective outcomes:



*Pre- and Post Survey*

### **Student Self-Awareness and Self-Management**

Pre- and Post-Survey: The exact same survey was sent to students at the beginning of January and at the end of May that asked them to rate their attitudes and perceptions related to self-awareness and self-management.



*Time-Series Assessment*

### **Student Quality of Reflections**

Change in Reflection Quality: Student reflections were coded on a three-point scale (0-2), where 0 is no reflection or irrelevant answer, 1 is addressing one part of the prompt or giving a simple answer, and 2 is addressing both points or giving a more in depth reflection. A research assistant coded each student reflection each week. Then, the scores were assessed for change over the course of the semester.



# Data Collection & Measurement

*continued*



*Pre- and Post Survey*

## **Teacher Confidence to Teach Social-Emotional Learning**

Pre- and Post-Survey: The exact same survey was sent to teachers at the beginning of January and at the end of May that asked them to rate their attitudes and feelings of efficacy toward teaching SEL in the classroom.



*Interviews*

Interviews: In the interviews detailed in the implementation design, teachers were also asked to describe their attitudes towards teaching SEL and to reflect on how Sown to Grow had impacted those attitudes.



*Time Series Assessment*

## **Teacher Quality of Feedback**

Change in Feedback Quality: The written teacher feedback was coded on a three-point scale (0-2), where 0 is no feedback was given, 1 is that the feedback was minimal and/or minimally supportive/helpful, and 2 is the feedback gave a more in depth response and was more supportive/helpful to the student. A research assistant coded each teacher's feedback each week. Then, the scores were assessed for change over the course of the semester.



# FINDINGS

# Implementation Findings



## Implementation Successes and Challenges

The table below summarizes the key implementation successes and challenges and provides educators a guide to what would be needed for successful onboarding, classroom implementation, and teacher support.

## Training & Support

### SUCCESSSES

- All teachers reported that the initial training was organized and easy to follow and allowed teachers to get using the basic features of the platform right away.

### CHALLENGES

- The majority of teachers wanted more training or “refresher trainings” for two main purposes:
  - 1.to better work with the more complex features of the platform.
  - 2.to learn ideas on how to implement and integrate Sown to Grow in the classroom

# Training & Support

## SUCSESSES

---

## CHALLENGES

- All teachers acknowledged, however, that it would be difficult to fit more trainings into their busy schedules. Instead, all teachers stated that it would be beneficial to have peer-to-peer training throughout the semester to learn from each other how they are all using it. The opportunity to learn best practices from each other would help teachers to feel more connected to the product.

## SUCSESSES

- All teachers agreed that the customer support offered by Sown to Grow was helpful and valuable, and they all believed that the Sown to Grow team was there to support them, and they all felt comfortable reaching out to the Sown to Grow team.

## CHALLENGES

- The majority of teachers stated that they received too many emails from Sown to Grow, and so teachers ended up not reading them. Teachers said that emails were not the best way to let them know of new features or to provide training, and they would rather have two or three optional 30-minute PD sessions throughout the semester/academic year.

## RECOMMENDATIONS

1. In the initial training, consider adding more support - evidence-based recommendations like the ones below - on how teachers should implement it in the classroom.
2. Offer additional, short PD sessions for users throughout the first semester of use to offer more insight into the more complex features.
3. Limit the number of emails to two a month so as to not flood teacher inboxes and curtail interaction with the email content.

# Teacher Classroom Use

## SUCCESSSES

- Teachers regularly used Sown to Grow once per week on Friday morning (as suggested by the Sown to Grow team during the initial training).
- Teachers were, however, able to find more consistent use and student engagement with the platform when they used it twice a week, particularly on Tuesdays AND Fridays.

## CHALLENGES

- Using Sown to Grow once per week posed a logistical challenge for consistent use and engagement.

***"If we missed Fridays due to PD Days -- then it would get off track."***

***"When the kids are absent -- due to sports activities for example - they get behind and therefore are not on the same schedule. The kids were really frustrated for being behind. I did not figure out a way to fix it. And so we just stopped doing it."***

## SUCCESSSES

- The teachers that used it twice a week said it helped them see a "fuller snapshot" of how students were feeling and how their moods changed throughout the week.

## CHALLENGES

- The majority of teachers felt that using it with students just once a week didn't capture the full spectrum of emotions that students experience in a given week.

***"I want to see how their week went. Ideally I would love to use it on Tuesdays and Fridays -- so I can see how the week started and then ended." "***

***I feel like the emotions capture a moment, but not necessarily the day or week."***

# Teacher Classroom Use

## SUCCESSSES

## CHALLENGES

- Many teachers reported that it was difficult to integrate Sown to Grow into a routine during the week, but this was largely due to it being started mid-way through the year instead of at the beginning of the academic year.

## RECOMMENDATIONS

1. Give teachers the option to use it twice a week - or as often as they'd like - for the emotions check-in (not the mini-lessons).
2. Consider a day other than Friday for check-ins as it tends to be a day that a lot of kids miss due to activities or for school closures
3. Begin implementation of Sown to Grow at the beginning of the year for optimal buy-in and ease of integration

# Teacher Feedback

## SUCCESSSES

- All teachers reported that seeing student reflections - when done properly - were valuable in getting to know the students better, particularly in understanding their personal lives better.

## CHALLENGES

## SUCCESSSES

- The majority of teachers provided informal feedback and checked-in with their students face-to-face after reading student reflections rather than provide written feedback within the Sown to Grow platform.

***"I think the written feedback teetered off because I had built those relationships and we felt more comfortable talking in person."***

***"I don't respond in STG. I will respond in person with a sticky note on their desks to let me know if they want to talk more about what they wrote. I prefer to check-in in person."***

## CHALLENGES

- Many teachers noted that students were not reading their written feedback in the platform or would see it awhile after the original reflection, and teachers felt like the written feedback was, therefore, less valuable than if they just checked-in with the student in person in real time.

***"When are students going to check my response? Is the reflection still valid at that point?"***



# Teacher Feedback

## SUCSESSES

- Teachers at Clinton County were interested in the academic goal setting feature. High school teachers, in particular, saw more value and relevance of the academic goal setting module than the SEL module as it was simply more in line with the goals of their school.

## CHALLENGES

- Most teachers reported not always knowing how to respond to student reflections through written feedback in a way that would be valuable (for comments worthy of a response) or relevant (for vague comments).

***"I provide feedback to students that need more attention. I definitely did not provide feedback to all students. It just didn't make sense to me, especially for some comments like "I had a great weekend."***

- Teachers supported the idea of automatic generated responses they could choose from and liked that it would also save them time, but many acknowledged they would still find the personal check-ins more valuable and so didn't know if prompts would increase their frequency in response or not.

***Evidence here supports Sown to Grow's next stage of research with AI generated teacher responses.***

## RECOMMENDATIONS

1. Continue next phase of research on AI generated teacher feedback responses.
2. Since the majority of teachers chose to check-in with their students in-person rather than in the platform - an extremely valuable and important method - it might be worth considering a place where teachers can mark or flag that personal outreach was completed as a way to remind teachers which reflections have been attended to and also as a way for school counselors or administrators to know that follow-up has occurred.

# Use of Mini-Lessons

## SUCCESSSES

- Unfortunately, the context of this school year - hybrid learning environments, chronic absenteeism - added more responsibility and uncertainty than typical years, so almost all teachers were not able to use the mini-lessons like they had hoped.

## CHALLENGES

- 2 out of 13 teachers actively used the mini lessons with their students in their classroom. Still, a number of observations and recommendations by teachers were made.
- Content of the mini-lessons:
- Material could be differentiated better
  - Elementary and high school teachers were more likely to say that the lessons were “not at the level of their students”  
***“The material could be differentiated better -- early elementary is different from 5th grade which is different from 7th grade which is different from high school.”***
- Material for high school should be more focused on Real-World Learning  
***“High school students, particularly the 11th and 12th graders are thinking more about their future and need lessons on how to cope in the ‘real world.’”***
- Teacher Agency:
  - Half of the teachers felt like the curriculum diminished the role of the teacher.  
***“It felt like ‘here are a bunch of slide shows -- just present this material.’ It was like a DARE program. It just seemed like that.”***

# Use of Mini-Lessons

## SUCCESSSES

- All teachers saw the value in the mini-lessons and saw it as a whole curriculum that would be worth pursuing.

## CHALLENGES

- Specials teachers and subject-specific high school teachers were not really sure how to teach SEL in their classes.

***"It was uncomfortable to have some of these conversations because in History we don't have those types of conversations in History class."***

***"I wasn't sure how to integrate the material into my Music/Art class."***

## RECOMMENDATIONS

1. Consider differentiating content, especially for high school students that are looking for strategies on dealing with real-world decisions.

# Student Use and Engagement

## SUCCESSSES

- Students felt comfortable sharing their reflections with teachers and knowing that other students wouldn't see their reflections or even know if they wrote something to their teachers.
- "I like that I can share something without everyone knowing."

## CHALLENGES

- The majority of students struggled to write meaningful reflections or perhaps chose not to write more detailed reflections.

***"Many of the student reflections did not touch upon social-emotional learning as much as it touched upon what the student did during the week or on the weekend (soccer games, birthday parties, too much homework, etc.), but nothing really dug deep into the actual feelings and how they coped with them."***

***"It seems that many of these kids are too young to be able to formulate actual answers to the questions. Their answers seem distracted, and often they are reporting things that seem random."***

## SUCCESSSES

---

## CHALLENGES

- Teachers and students alike reported that the question prompt for writing reflections actually confused students as it was unclear if they were supposed to answer the SEL question or simply reflect on their choice of emotion or feeling.
- Students said they'd prefer to just write about how they are feeling and not answer the question prompt which felt like to them more of a quiz on the mini-lesson.

# Use of Mini-Lessons

## RECOMMENDATIONS

1. Consider removing SEL question prompts and allow students to simply elaborate on their emotions/feelings at the time.
  - If teachers are not using the mini-lessons, the SEL question prompt seems out of place. Even if teachers are using it, most students feel like it is a quiz question rather than an opportunity to write their sincere thoughts. And for some students that find the SEL material difficult, the SEL question prompt further isolates them.
2. Teachers will need strategies on how to teach students how to write better reflections or incentivize them to do so. Consider adding any evidence-based approaches to the initial training or follow-up PD sessions and having other “power user teachers” lead a session or provide a video.

# Student Feedback

## LIKES AND VALUE-ADDS

### Self-Awareness and Motivation

***"I think more about myself and I can write down my goals and I can achieve them."***

***"It's an opportunity to write your goals and remember because putting it on paper [means] others can take it and you don't have it and can forget what it says."***

### Way to share feelings that are normally kept inside

***"I usually don't feel comfortable around people and sharing my problems so I feel like Sown to Grow gives me a place to share my feelings."***

***"A lot of things have been happening with my life this year. My grandmother died this year and I can let my feelings out about that."***

### Tool for Anger Management

***"I feel like Sown to grow is a place where you can feel comfortable and speak and when I'm mad I can write my feelings down and it makes me feel better."***

***"My team got mad and started fighting. Once we went over anger management, it helped make sense and instead we realized we were getting mad at each other instead of solving it."***

### Private Sharing

***"I like that I can share something without everyone knowing."***

***"I feel like it's another way to share my goals and a more private way."***

***"It's private and no one sees it!"***

# Student Feedback

## WISHES AND BARRIERS

### More Content on Life Skills

*"I need slides for lifeskills. So maybe more lessons on that in Sown to Grow."*

*"It would help if there were more examples of real problems and how it can help us."*

### Option to Pick More than One Emoticon

*"I'd like more pictures or the option to pick two that you felt the most this week."*

### More Emoticon Choices

*"I would also like more faces for different expressions."*

*"There aren't faces for frustrated, sad, mad or angry."*

### More space to write freely

*"We should not have the question and be free write about other things."*

*"If nothing was hard I just wanted to put in like nothing and it was very good and write fun and cool things that I did."*

*"Maybe we could just talk to [the teacher] in a different box and answer the question in a different box."*





# Value Add for Teachers

**Better student-teacher relationships**

## TEACHER QUOTES

- "Opens the door for a SEL conversation with students."
- "Sown to Grow supported us to learn more about our students and develop stronger one-to-one relationships with them."
- "Building relationships adds value -- I think STG has helped students know that someone is listening to them."

---

**Allows for a new and effective space for students to communicate with teacher**

## TEACHER QUOTES

- "The students are reaching out to the teacher -- they are wanting to do the check-ins."
- "Using this platform has helped identify some of the students who have less than ideal home lives. It has opened doors of communication."

# Value Add for Teachers

*continued*

**Teachers learn more about how to teach and talk about social-emotional learning.**

## TEACHER QUOTES

- “The lessons have been very educational for me so I can understand the language to use with students.”
- “It’s another tool in the toolbox.”

---

**Gives teachers a common SEL language among school personnel and with parents.**

## TEACHER QUOTES

- “I would use STG language in my check ins throughout the week.”
- “I look at the lessons to see what is the language to use even if I don’t use the lesson so I know what is the right language to use or what to say.”

# Usability Findings



## Recommendations for Enhancements

Suggestions for product enhancements in order of urgency and frequency of suggestion:

1

### Have more emoticon options

- All high school teachers and students wanted more complex emoticons.
  - Need emoticons that represent anger, frustration, anxiety, etc. - not just ones on the sad to happy continuum.
  - "I don't know what happy and unhappy really means. Does unhappy mean angry or sad?"
  - "I would like more emotions -- so that I can have a full range of understanding of my students."
  - "I do feel like that emoticons provide some information. But it's all on the happiness spectrum. I don't know what the kids are seeing or how they are interpreting them."
- All four kindergarten teachers stated that they don't teach "bad emotions" and so they wanted the ability to have more emoticon options for "less positive" type emotions.

2

### Select multiple emotions

- All teachers suggested the ability to select multiple emotions because you can be "happy" and "tired" and the teachers want to know a fuller picture of the students' social-emotional well-being.

3

### **A two-way messaging feature**

- Many teachers and students wanted the ability for students to respond back to teacher feedback and have a way to keep communicating, especially in instances where the student felt uncomfortable to talk in-person but did want to keep the conversation going on the platform.

4

### **Alerts and read notifications for teachers and students**

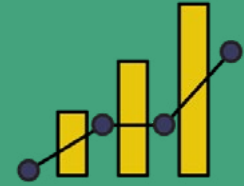
- Many teachers and students said it would be nice to have a notification or alert to know when the teacher/student read the reflection/feedback, so that either party knew whether a reminder or additional follow-up was needed.
- Both parties wanted a notification or alert when a reflection or feedback was given so they would know to go and read it

5

### **Teacher dashboard to track emotions and connect with a counselor dashboard**

- Teachers wanted a dashboard to sync with a counselor and alert the counselor when a higher-level intervention might be needed based on a student's reflection.
  - This also promoted further requests for a two-messaging feature and a way to "refer" a student on the platform to a counselor who could communicate with a student, especially if a student was being resistant to a deeper conversation in-person.

# Quantitative Results



In this section, the results of the correlational analysis are presented. First and foremost, the conditions of implementation in this study were not favorable for an effective correlational study, as unpredictable changes in learning environments, chronic absenteeism, and added responsibilities for teachers meant consistent usage of the platform was less than otherwise might be. It was difficult for school systems to fully integrate Sown to Grow into the routine and to prioritize it midway through the academic year and with everything else going on during the global pandemic. Thus, the correlational results likely do not reflect the impact we may have seen in a more “normal” year and implementation and it is recommended that the correlational study be repeated in the near future to properly assess the potential impact of Sown to Grow on student and teacher SEL outcomes.

## 1

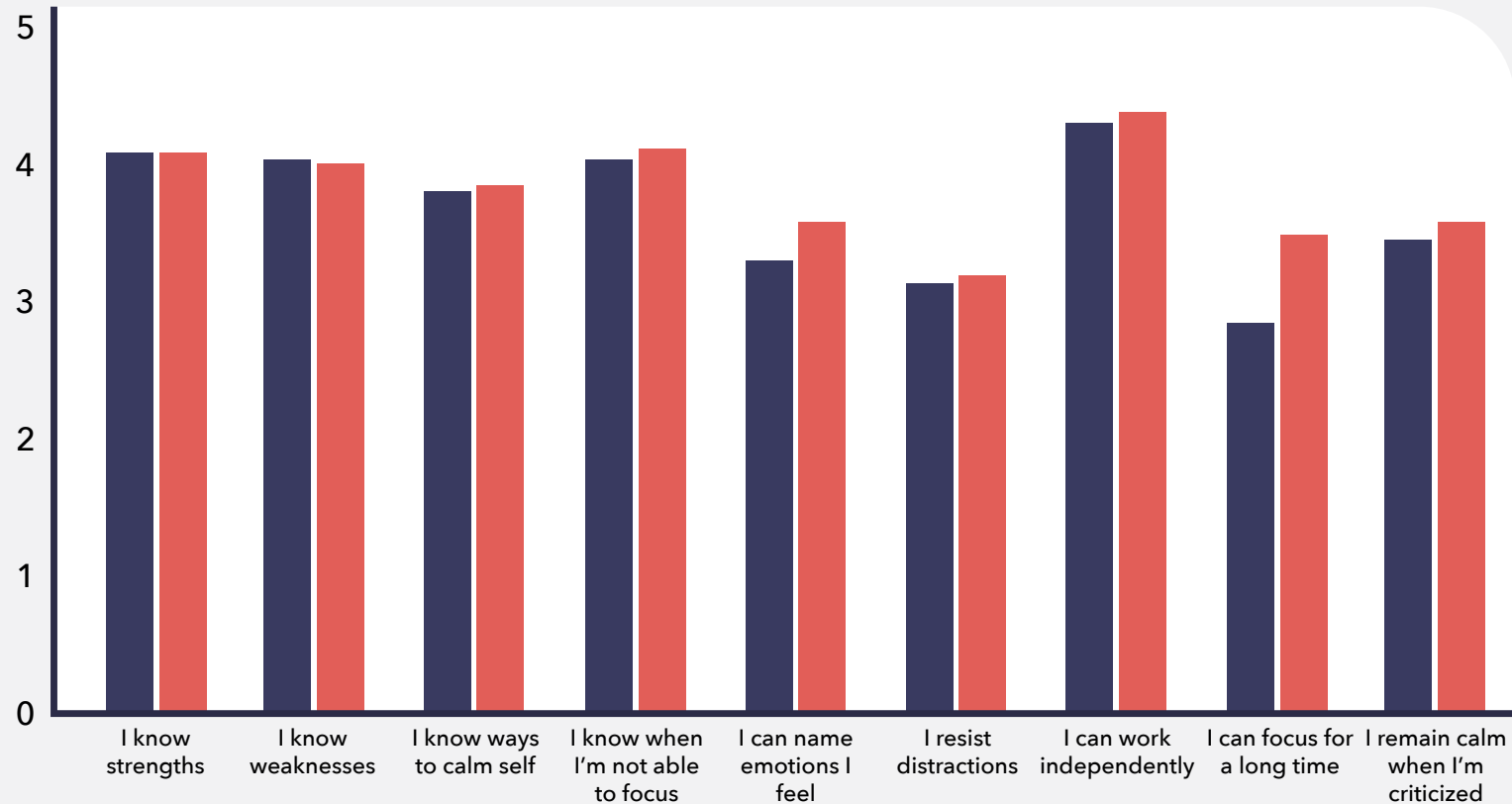
### **Student Self-Awareness and Self-Management**

- To assess student self-awareness and self-management, a pre- and post-survey were given to all students that asked for their attitudes towards a number of question prompts related to emotional regulation, teacher feedback, and reflections.
- It should be noted that the response rate on the post-survey for students was extremely low as end-of-year priorities competed with implementation of the post-survey. On the pre-survey, there were 341 respondents among the two schools, but only 38 students completed the post-survey - all of whom were 11th-12th graders from CCR3. Thus, the results below are not statistically significant but do provide preliminary evidence of impact, especially in self-awareness.
- Combined with the qualitative student feedback above, the quantitative results here suggest sufficient evidence to warrant further research on Sown to Grow's impact on SEL student outcomes.

# Student Survey Responses

Figure 1: Figure 1 below illustrates the change in students' average survey responses to a number of statements related to emotional regulation. Recall that the N on the post-survey is 38, so none of the changes are statistically significant.

## Change in Average Survey Response to Emotional Regulation Statements



Pre

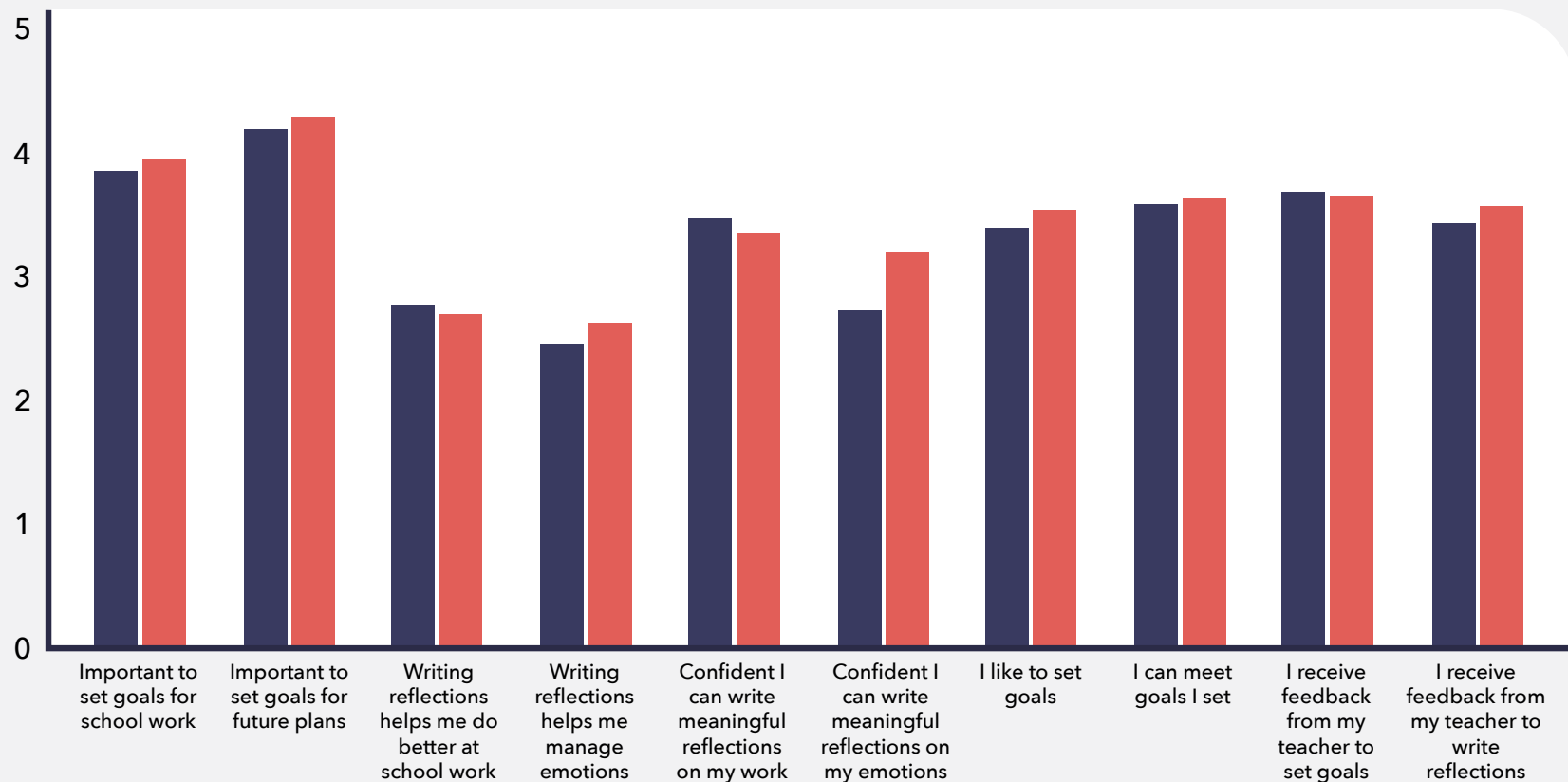
Post

# Student Survey Responses

*continued*

Figure 2 below illustrates the change in students' average survey responses to a number of statements related to goal-setting and reflecting writing. Recall that the N on the post-survey is 38, so none of the changes are statistically significant.

### Change in Average Survey Response to Goals & Reflection Statements



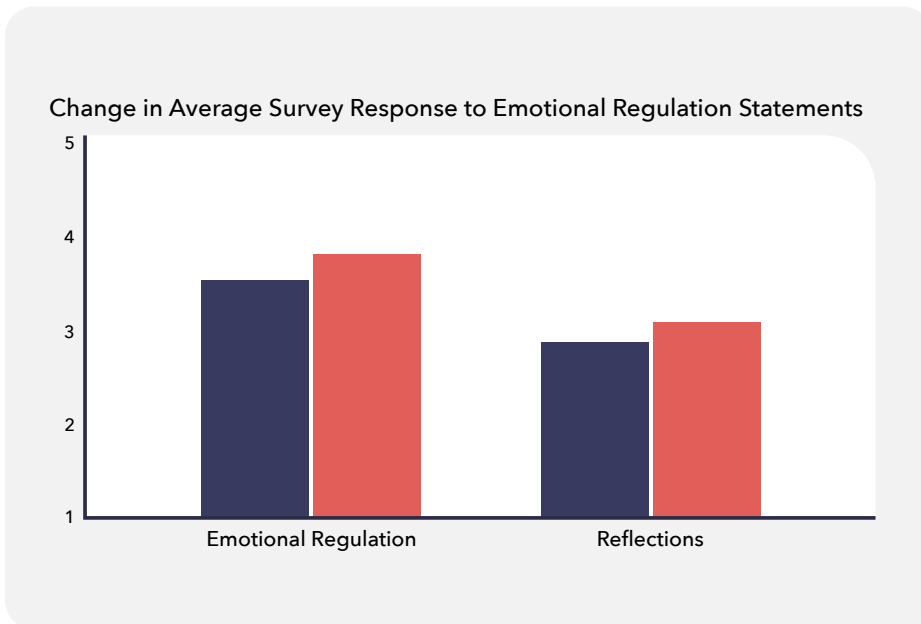
*Pre*

*Post*

# Student Survey Responses

*continued*

Figure 3



*Pre (n=341)*

*Post (n=38)*

Lastly, Figure 3 illustrates the aggregated average student scores on all emotional regulation statements (shown in Figure 1) and all the reflection statements (shown in Figure 2). It does not include goal-setting aggregate scores as teachers did not use the goal-setting feature with students. While the differences here are not statistically significant, it does provide preliminary evidence of impact, especially with high school students who are the only ones reflected in the post-survey scores.



# Quantitative Results

*continued*

## 2

### Student Quality of Reflections

- Over the course of the semester, student reflections were scored on a scale of 0-2, where 0 is no reflection or irrelevant answer, 1 is addressing one part of the prompt or giving a simple answer, and 2 is addressing both points or giving a more in depth reflection.
- Scores were calculated each Friday from January 29 to April 16. In Figure 4, the average scores from each week over the course of the semester are shown.
- There was not much change until April when the quality of reflections went up for two weeks before dropping the last week.

Change in Quality of Student Reflections

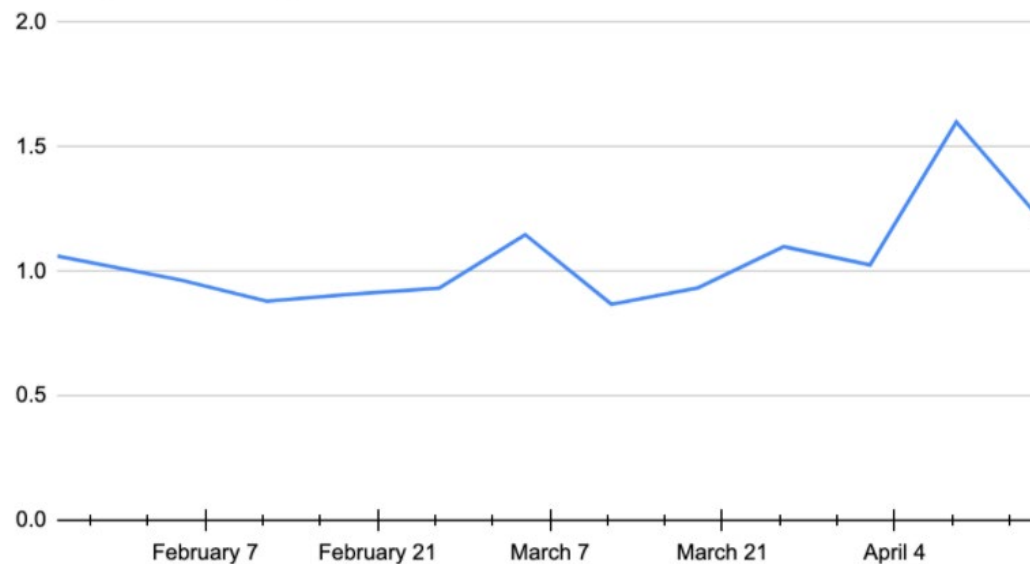


Figure 4

# Student Reflection Trends

A qualitative analysis was also conducted to identify trends in student reflections as a way to supplement the quantitative analysis in Figure 4 and evaluate deeper the variation across grade levels. The data provided in the tables below may be helpful as Sown to Grow develops AI generated responses for teachers.

## Student Reflection Trends at Gordon Parks Elementary School

Kindergarten	2nd Grade	3rd Grade	4th Grade
<ul style="list-style-type: none"> <li>• Short responses</li> <li>• Many reflections with irrelevant information</li> <li>• Many spelling errors that affect comprehension of the reflection</li> <li>• Most reflections scored a 0 and some scored a 1</li> </ul>	<ul style="list-style-type: none"> <li>• More answers identifying primary emotions (Happy, sad, excited), but no further reflection</li> <li>• Less spelling errors, but many still present</li> <li>• Most reflections scored a 0 and some scored a 1</li> </ul>	<ul style="list-style-type: none"> <li>• Beginning to see an ability to explain SEL strategies used, such as breathing and talking to friends</li> <li>• Less spelling errors, but still some present</li> <li>• Some 0s, starting to see more 1s and a few 2s</li> </ul>	<ul style="list-style-type: none"> <li>• More answers identifying primary emotions (Happy, sad, excited), but no further reflection</li> <li>• Less spelling errors, but many still present</li> <li>• Most reflections scored a 0 and some scored a 1</li> </ul>

## Student Reflection Trends at CCR3

3rd Grade	4th Grade	5th Grade	6th Grade
<ul style="list-style-type: none"> <li>• Some spelling errors that affect readability</li> <li>• Random reflections of weekly occurrences, not related to strategies or feelings</li> <li>• Many students discussing drama and disagreements between classmates; Telling in their reflection that another student was mean to them</li> </ul>	<ul style="list-style-type: none"> <li>• Fewer grammatical errors</li> <li>• Reflections not in depth, and talk more about superficial topics</li> <li>• Many students report on enjoying the snow days and having time at home</li> </ul>	<ul style="list-style-type: none"> <li>• Some students listing strengths and strategies</li> <li>• Little reflection on practical application that helps themselves, mostly just listing occurrences of events</li> <li>• Students begin to know whether or not they were focusing this week, and are able to report on that</li> </ul>	<ul style="list-style-type: none"> <li>• More students able to identify strengths and list how they used them throughout the week</li> <li>• More listing and utilizing of strategies such as talking to friends, referring back to how they solved old problems, and taking breaks from stressful situations</li> </ul>

# Student Reflection Trends

*continued*

## Student Reflection Trends at CCR3

7th Grade	8th Grade	9th Grade	10th Grade
<ul style="list-style-type: none"><li>• Many of the strategies students are using strategies that include isolating themselves instead of talking to someone else and breathing exercises</li><li>• More students reflect on being aware of their own emotions and how they affect them</li></ul>	<ul style="list-style-type: none"><li>• Short answers are common</li><li>• Many students reporting they were tired and did not use strategies for the week</li><li>• A lot of reporting "I don't know" in regards to strengths and strategies</li><li>• The most feeling responses without reflection</li></ul>	<ul style="list-style-type: none"><li>• Short answers are common</li><li>• Many students were tired and reported about out of school activities such as sports</li><li>• A lot of talk of procrastination or being behind on their schoolwork</li></ul>	<ul style="list-style-type: none"><li>• Bigger focus on the stress of school and increase in assignments</li><li>• Many utilize distraction as a strategy</li><li>• These are the most in depth reflections on noticing when they are distracted or losing focus</li></ul>
11th Grade	12th Grade		
<ul style="list-style-type: none"><li>• Mention strategies and are reflecting back on their progress. It seems they are trying to lessen their stress and understand their feelings</li><li>• Seems to be changing behavior and trying new strategies after the second week of the prompt asking them to.</li></ul>	<ul style="list-style-type: none"><li>• Many reporting stress from college, testing, jobs, and sports</li><li>• Either long detailed answers or short/no answers. Few falling in the middle</li></ul>		

It seems like 5th/6th grade is the sweet spot where students start to successfully be able to identify and reflect on more complex topics of strategies and strengths, as well as ways to utilize them. Before this grade level, there are spelling and grammar issues that affect readability as well as random answers that do not address the weekly prompt and students struggle to reflect in a deeper way.

# Quantitative Results

*continued*

## 3

### **Teacher Confidence to Teach Social-Emotional Learning**

- Unfortunately, only 4 teachers at CCR3 completed the post-survey and their responses were actually lower (less positive) on the post-survey suggesting less confidence to teach SEL.
- These results are not, however, representative and the context and timing that the post-survey occurred were also not favorable for assessing teacher confidence as it came at a particularly challenging time at the end of the semester after many weeks with increased responsibility and uncertainty.

## 4

### **Teacher Quality of Feedback**

- Because teacher feedback was so minimal over the course of the semester, a time-series analysis of the data to assess change in quality of feedback was not fruitful.
- Instead, a qualitative analysis was conducted to identify trends in teacher responses as a way to assess overall quality of feedback, which can be helpful as Sown to Grow develops AI generated responses for teachers.

# Teacher Results

## Teacher Quality of Feedback

Because teacher feedback was so minimal over the course of the semester, a time-series analysis of the data to assess change in quality of feedback was not fruitful. Instead, a qualitative analysis was conducted to identify trends in teacher responses

as a way to assess overall quality of feedback, which can be helpful as Sown to Grow develops AI generated responses for teachers.

### Trends in Teacher Responses at GPES

She responded to three student's posts. One was to question why the student reported being depressed, one was to celebrate that the student was doing so well, and another was to comment on how much the student likes their dog because they reflected being happy because they love playing with their dog.

No responses

No responses

No responses

No responses

No responses

### Grade

Kindergarten

Kindergarten

2nd Grade

3rd Grade

4th Grade

Specials

# Teacher Results

*continued*

## Trends in Teacher Responses at CCR3

Grade

This class seems to have quite a few problems with students fighting or not getting along. Jennifer addresses complaints of this in her responses in a productive way by encouraging them to talk through problems, and to ask for help with this if necessary. She also encourages students to reread the questions when they are not responding to the prompts. As mentioned before, I think the younger students have a harder time responding to the later prompts. Jennifer does a great job trying to guide them back to the prompt while still acknowledging and thanking the students for what they do say in their reflections.

3rd Grade

She has responded at least once for almost every student she has. Her reflections are always more detailed and lengthy. She pulls in information from the student's life events into her encouraging answers, which always makes them seem more personal. She tends to relate to the student's feelings in her replies. If the student is sad about missing school, she says she is sad to not see them as well, and additionally, if a student reports being excited for an extracurricular activity, she encourages them and says she is excited for them as well. Since the students in her classes are young, many of the earlier reflections that simply ask them about their week yielded more complete answers. She was more likely to respond to these entries than the harder prompts that may not have had the most complete responses from her students. The biggest positive, she always seemed to validate the student's feeling before directing the response towards a solution.

4th-5th Grade

When he does respond, answers are usually short and concise. They are either direct questions to what the student posted, such as asking why they haven't gotten much done, or why two students aren't getting along, or direct encouragement, such as "remember that feeling" and "Awesome Answer". It seems that there was much less conflict for him to address with his students, but he did encourage students to come talk to him who seemed to report on a potentially problematic issue. One positive highlight from his responses was that I noticed several times he addressed his students by name when encouraging them. He did this more when students would report that they didn't know their strengths or had no coping strategies. He also encouraged students who were refusing to put reflections but reported negative moods to open up.

6th-7th Grade

# Teacher Results

*continued*

## Trends in Teacher Responses at CCR3

### Grade

He did not respond to very many student's posts, though I will say that his students did not give him a lot to work with. It seems that the 8th graders were not posting very detailed or lengthy responses, and most of them were pretty generic. Many of his students reported simply being stressed or tired from the week and not utilizing any strategies other than TV or video games. He responded a few times to students who reported being happy, but simply responded with "Glad you are happy!" or if a student reported a better week he expressed that he was "Glad it was better!"

8th Grade

She seemed to have responded to her students the least. Many of her comments were encouraging students who reported having a good week. Many of her students reported ways that they were struggling, but she did not respond to these entries. It seems that the few responses she had were for the students already reporting positive emotions and experiences.

9th-10th Grade

Many of her responses were related to the student's athletic activities and responses to the weather, which means that she still interacted with students whose responses were more surface level. When students were reporting that they were struggling, she often asked a lot of questions in hopes of getting the student to talk more about it. Those answers were very solution oriented, such as suggesting to talk to certain teachers, do research into the topics, or help brainstorm ways to solve the problem. A handful of her students reported being unhappy with recent changes to the dress code. Her answers always suggested researching the problem and attempting to come up with another solution, which she would help them present to the board.

11th-12th Grade







## CONCLUSION

The purpose of this study was to identify and verify conditions of Sown to Grow implementation that would yield sustained engagement from teachers and students across different contexts. The evidence collected in this study suggests that many teachers and students developed deeper relationships by being able to communicate about social-emotional concerns for the students. Anecdotal evidence shows that teachers felt like they understood the social-emotional states of their students better and students valued the private way to communicate with their teachers. Students reported being more aware of their emotions and many gave anger management as an example of an emotion they learned to manage better. Teachers also valued Sown to Grow for the common language it provides the whole school system and, therefore, a more effective way to communicate and collaborate with one another.

The findings in this study also highlighted ways Sown to Grow implementation in the classroom could be enhanced to yield more fidelity in teacher and student use and engagement and they can be categorized into three main areas: onboarding, teacher use and engagement, and student use and engagement.

The existing **onboarding protocol** offered by Sown to Grow is a necessary component for teacher success with the tool and teachers were satisfied with the customer support offered by Sown to Grow. It is recommended that Sown to Grow incorporate additional teacher instructional support to advise more clearly how teachers can implement the platform in the classroom with more fidelity. To that end, Sown to Grow should continue to gather evidence-based approaches through more implementation studies to identify specific conditions that yield

more sustained engagement.

There are three key features to implementation and usability of Sown to Grow that may increase **successful teacher engagement**. First, teachers across the two school systems found most success when they used it twice a week, which allowed them to assess how their students were feeling over the week and get a fuller understanding of the students' social-emotional well-being and more opportunity to flag concerning student reflections. It also allowed them to be more consistent as too many scheduling conflicts and school closures occur on Fridays. Second, teachers found leaving feedback challenging because they a) didn't have much time to respond in writing to all students and b) often did not know the appropriate or a helpful way to respond. Thus, the need for Sown to Grow's next endeavor to create AI-generated feedback prompts for teachers is validated in this study. Third, while teachers did not have a good chance to use the mini-lessons in this study, the feedback suggests a desire for more differentiation of the content, particularly with more real-world content for high school students.

The key to **successful student engagement** seems to be to have more flexibility in what students can write about. Most students reported feeling constrained in what they could say due to having to respond to the question prompt rather than simply being able to reflect on their emotions at the time.

From a **product usability** perspective, the key recommendation enhancement from teachers and students revolves around adding more complex emoticons that reflect a larger range of possible emotions, particularly those that do not fall nicely

on the sad to happy spectrum, such as frustration, anger, and anxiety.

Overall, the results of this research study provide preliminary qualitative evidence that Sown to Grow can add significant value to the classroom by building student-teacher relationships and providing everyone with the language and skills to reflect and manage emotions. Since implementation conditions were not favorable to properly assess correlation of Sown to Grow usage with student and teacher outcomes, it is recommended that further correlational research be conducted in the fall to gather evidence of the promise of impact of Sown to Grow.