

# **Helping Children Emotionally Develop: A Design Thinking Case Study About Creating A Tool To Assist Parents In Their Child's Emotional Well-Being**



**Sondra Yancey**



**Alison Buchanan**

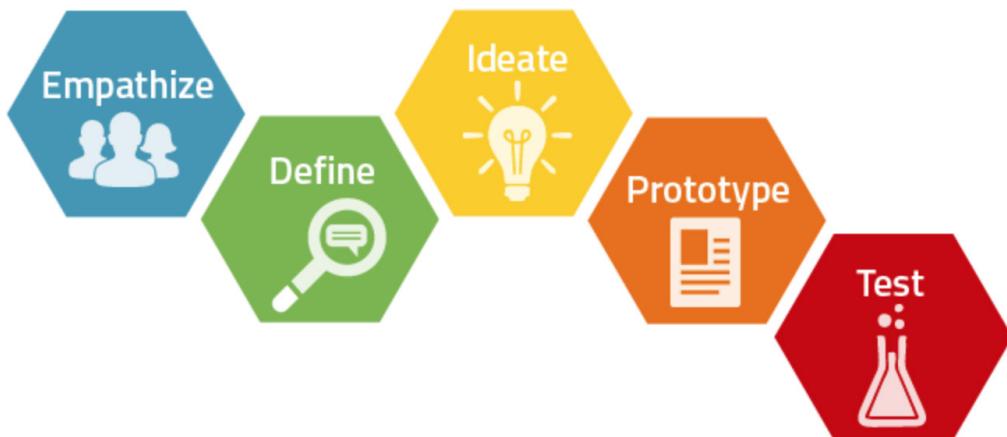


**Lukas Sexton**

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## DESIGN THINKING



# Design Problem

## Design Prompt: How Might We... Make Schools Safer?

We began this process with the following premise: Schools are overcrowded, and understaffed. Teachers lack the necessary resources to help students academically excel while simultaneously being tasked with managing the physical safety and mental well-being of a wide range of students.

We were particularly interested in exploring safety concerns revolving around students that need extra support in the classroom. These students access direct student services such as the Counseling Center or Occupational Therapist etc.

## Objectives:

1. Conduct research to better understand the problem.
2. Design a solution in the form of a physical tool that increases the safety of elementary students accessing direct student services.
3. Test and iterate our solution into a higher fidelity prototype.



**FIGURE 1:** The Teaching area of a classroom

## Design Question: How Might We... Help Increase The Physical Safety Of Students Involved With Direct Student Services In Low Resource And Underserved Classrooms?

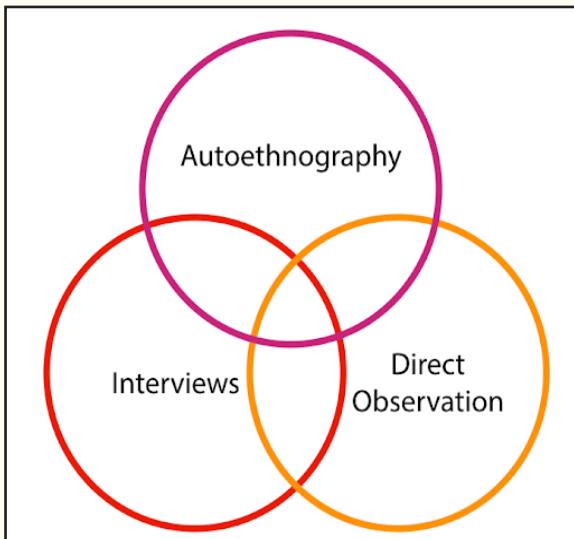
## Research Questions:

1. What are the specific concerns that teachers think of when a special education student is escalating behavior?
2. What are other safety concerns that teachers have?
3. What are pain points within the direct student services that create barriers for students and teachers to get help prior, during, and after escalated behavior takes place?
4. What resources are available for teachers and staff when they are feeling overwhelmed in an understaffed classroom with special education students?
5. What environmental factors lead to a child having escalated behavior?

## User Research

Our initial target users were elementary school staff, teachers, and students interacting with direct student services.

To help answer our research questions our team conducted *interviews*, *autoethnography*, and *in-person classroom observations*. We felt that these mixed methods would give us insight into the frustrations teachers face on both a daily basis and during emergencies.



**Figure 2:** Research Methods Used.

*Autoethnographic research (in this case) is when participants take photos to explore anecdotal and personal experiences to help answer Research and Design questions.*

### Autoethnography (n=2)

Our first participant, a third-grade teacher, provided us with a written journal gathered over two days. She reported incidents of students fighting, bullying each other, throwing balls at each other, and leaving the classroom without permission. This participant expressed frustration over lacking the time or tools to manage her students adequately.

A different third-grade teacher, our second participant, took photos of safety concerns on her elementary school grounds. For more details, please see Figure 3 or the Appendix.

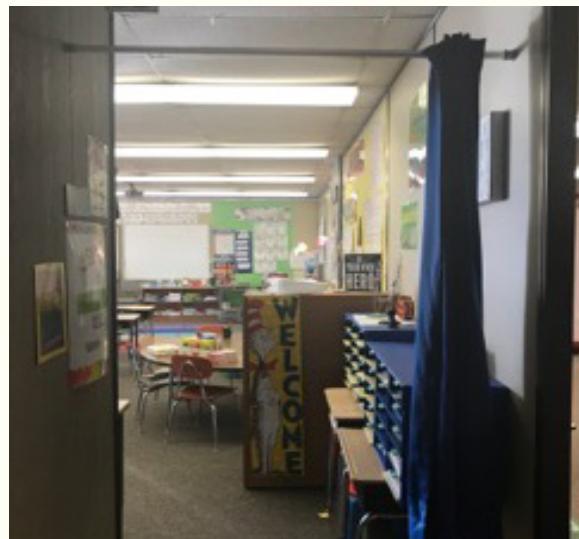
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**Students with disabilities are often given tactile toys to help them focus.**

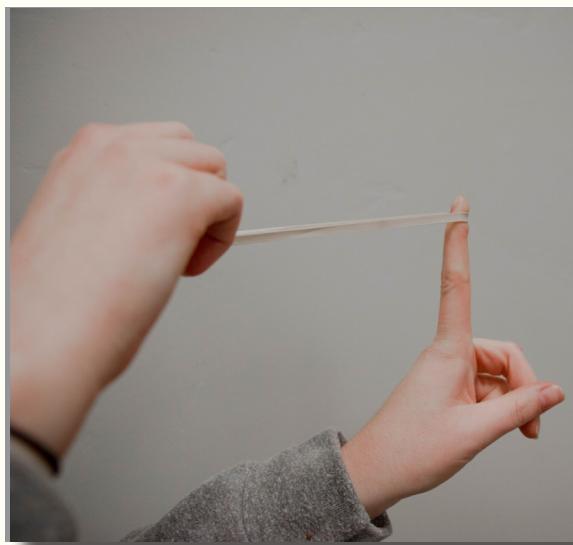
### Phone Interview (n=2)

We interviewed a school Occupational Therapist (OT) and a Kindergarten Teacher (KT) over the phone for about 30 minutes respectively. The OT expressed frustration over classroom layouts leading to a distracting and overwhelming classroom environment for her students. She emphasized a desire to find a better way to communicate directions and lessons to students.

The KT mentioned that her students with disabilities are often given tactile toys to help them focus. Both the KT and the OT expressed concerns about students in the class falling over or tripping which is especially troublesome for students who have less control of their limbs or have difficulty maneuvering due to vision issues.



**Figure 3:** This photo was gathered from Autoethnographic research. The image depicts a classroom without a door that uses a curtain for privacy but as a result leaves teachers unable to lock their doors in an emergency.



**Figure 4:** Tactile tools helps calm kids.

#### In Person Interview (n=6)

In a separate school, staff discussed a variety of other safety concerns; such as student hygiene. Teachers were also concerned about students leaving through many of the exit doors and unauthorized adults entering the school. The school counselor noted that she had seen an increase in self-harm as a coping mechanism for students. She has also noticed an increase in students that do not have the skills to regulate their own emotions. She described to us the methods she uses to teach students how to name feelings, develop empathy, and self-soothe. She mentioned she wanted a “parent kit” to pass on follow-up instructions to parents.

All teachers acknowledged they have a good school support system and can rely on each other for help. For example, they have a dedicated safe space classroom, also known as the “Turn Around Center (TAC),” with an open door policy that allows students to choose to ways to calm down; such as using stretchy fabric, elastic bands or a weighted blanket. Please See Figure 5 for more details.



**Figure 5:** The Turn Around Center (TAC) has different calming tools such as dimmed lights or a quiet space.

#### Direct Observation (3.5 hours)

We observed a 3rd-grade classroom filled with distracted or emotionally disruptive students professionally kept on track with the lesson plan. None of the children observed that day had any escalated behavior, but if they had chosen so, they could have voluntarily visited the Turn Around Center (TAC) for a few minutes.

In the TAC, we saw students enter on their own and choose a 5-10 minute activity. The teacher gave one-on-one help with a student’s work while providing positive verbal reinforcement.

“

**Students in the Turn Around Center calmed down using tactile tools such as stretchy fabric or elastic bands.**

**Refined Target Users:**  
**Counselors | Parents | Students**

## Redefining the Problem

After conducting our research, we triangulated our findings and found common themes across participant data. The majority of our participants identified elementary school students' inability to recognize and regulate their emotions as a huge safety concern.

## Goals

Teachers and counselors noted that they teach emotional regulation frequently in counseling sessions and the classroom. Their ultimate goal is to help students learn to use these strategies on their own.

## Barriers

Counselors noted that emotional regulation reaches beyond the classroom setting. Students look to their parents for guidance, but often times parents are not properly prepared to deal with their child's emotions or are unable to regulate their own emotions. Counselors make an effort to schedule appointments with parents to provide guidance on how to address emotional health. Unfortunately, parents struggle to find the time to come to these appointments.

## Needs

Counselors and teachers wanted a way to pass on their knowledge and resources to parents. They lack a tool that continuously engages parents in their child's emotional development.



KAREN MCTICKTOCK  
SCHOOL COUNSELOR

Karen hopes that all students will learn to live life as their best selves. She wants to effectively pass on her knowledge to parents.



DAN THE DAD  
HARDWORKING PARENT

Dan wants his child to be successful and behave; but he does not have the time or resources to do so.



SABRINA SPELLMAN  
ELEMENTARY SCHOOL TEACHER

Sabrina wants a better understanding of her students safety when they are outside of the classroom. She does not have the time to have another "thing" added to her teaching workload.

**Updated Design Question:**  
***How Might We...Design A Tool That Helps Counselors Engage Parents In Addressing Their Students' Emotional Health?***

## Pivot

After analyzing our results, we found that physical safety wasn't as big of an issue as we thought. Instead most teachers and staff expressed concern about student's emotional regulation and the need to involve parents to be a part of the solution. We also found that teachers in both high and low income schools had access to a surprising amount of resources and felt supported by their community.

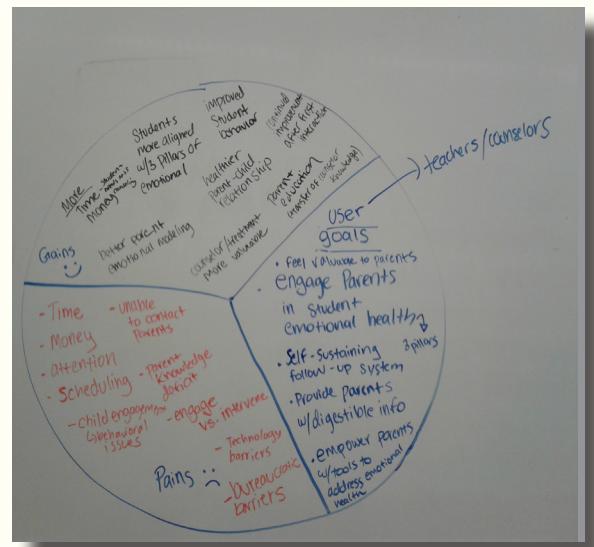
## Narrowing our Scope

With our ideas and insights, we formed a list of design requirements for our solution to narrow our scope. To ensure that we kept our personas in mind, we used a Value Proposition Canvas to identify our persona's goals, pains, and gains within our problem space. We also used a Business Model Canvas to think deeper about our users, allies, and resources (see Appendix for details).



**Figure 6:** Scenario Mapping was a tool to help us understand the gap in user interactions.

Before coming up with possible solutions to the design question, our team utilized design methods to help identify and reframe essential components. We used the technique "Scenario Mapping" (Figure 6) to help us better understand how our future solution might fit into our users' workflow. With this in mind we brainstormed with prompts to warm-up our idea generation skills; for example "What would a solution to this problem look like in the 1800's?"



**Figure 7:** Value Proposition Canvas was a tool that aided us in better understanding our user needs.

## Design Requirements

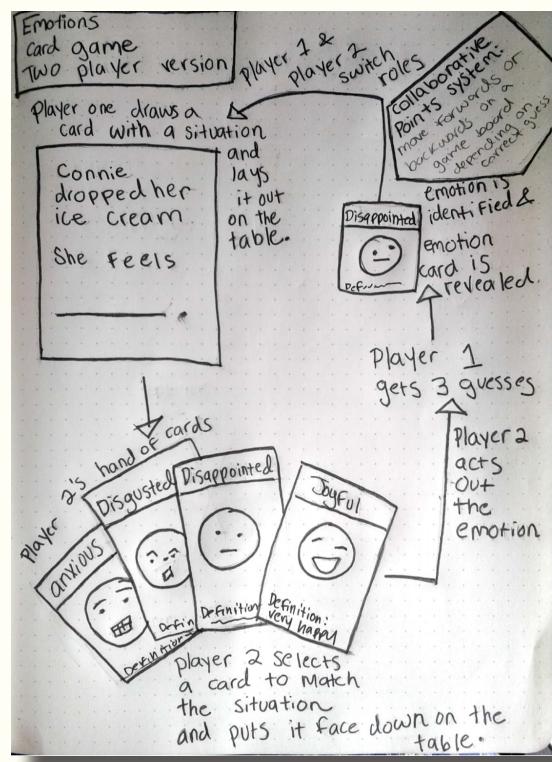
1. The solution should encourage parent engagement on a regular basis.
2. The solution should create a dialogue between parents and children about emotional regulation.
3. The solution should not be cost prohibitive, as it should be designed for users with varying levels of income.

## Sketching

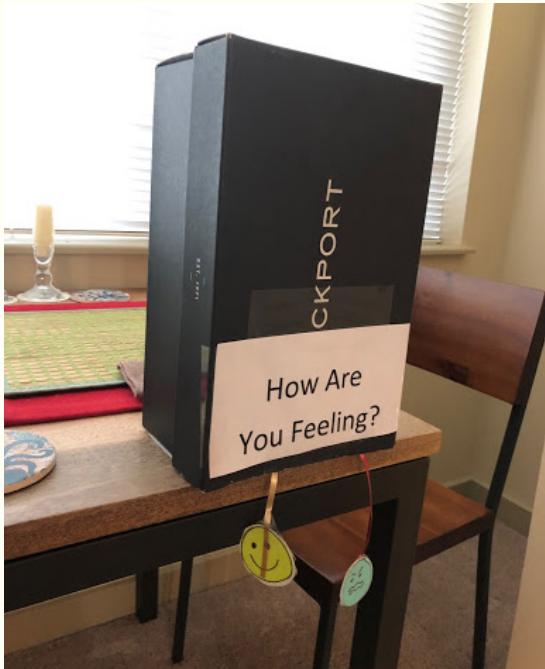
With our design requirements in mind, we had a group sketching session. Each of us produced six sketches of a possible solution. We then used a viability- feasibility matrix to identify our top three most viable and feasible solution ideas (please see Appendix).

## Parent Input

To further help us narrow down our ideas, we realized we needed to get some input from parents as they had become a more dominant stakeholder in our refined design question. We made a quick video pitching three of our top ideas to see what three parents liked and disliked about each option (see Appendix). All three parents were enthusiastic about the emotional card game, but we discovered many similar products existed on the market already. For inspiration, we re-visited our initial user research, and as a result, we decided to explore interactions involving emotional cards and physical components incorporated together.



**Figure 8:** Sketch of Emotional Card Game



**Figure 9:** First Functioning Prototype of E.D.D.

## Back to the Drawing Board

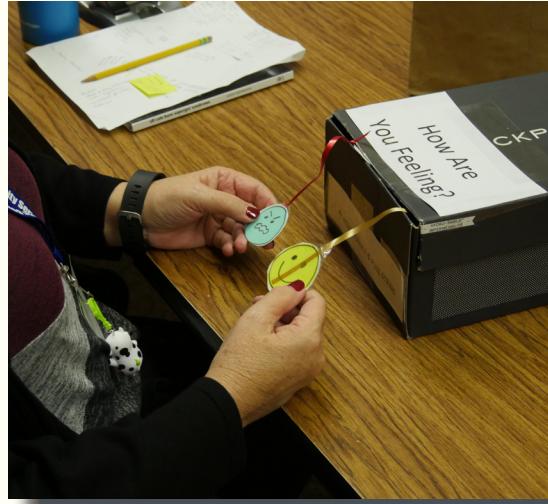
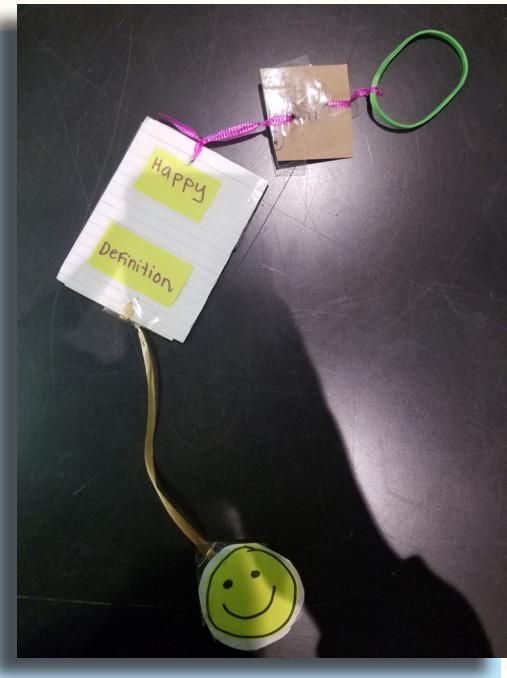
Our team had one more group sketching session and finally decided on an emotion identification tool with a tactile “Pull” component. We felt that this met the goals of all three of our personas as it serves as a vessel for counselor information, and provides an engaging, tactile experience for both parents and children.

As seen in Figure 9, we created our prototype nicknamed Emotional Definition Dude (E.D.D.).

## Core Features

### **Feature 1: Emotion Identifiers**

Each face represents a different emotion and is attached to a string that hangs out of the box. Once a user identifies their feelings, they pull on that string.



### **Feature 2: Elastic Bands**

Bands are attached to the end of the string to create resistance on the line when users pull on the emotional identifier from the other side.

### **Feature 3: Emotional Prompt Card**

Hidden inside the box are cards attached to strings. When a participant pulls on the string, their Emotional Prompt card is revealed, and once they let go, it will promptly get tucked back inside. For this prototype version, the cards are intentionally left vague so that participants can tell us about the content they would want on the card.



## Testing

Because our solution included several stakeholders, we ran usability tests with two separate user groups: parents and counselors. First, we identified our research questions then worked to answer them by conducting usability testing (see Appendix).

### Usability Research Questions

1. Is it easy for users to discover how to use this product?
2. Can users successfully access the resource cards?
3. Does the task flow make sense?
4. Is this something users would use?
5. Is this something users find valuable and engaging?
6. What kinds of reactions to the product are common across both user groups?
7. What kind of emotions and content would users like to see on/in this artifact?

### Counselor Testing Results

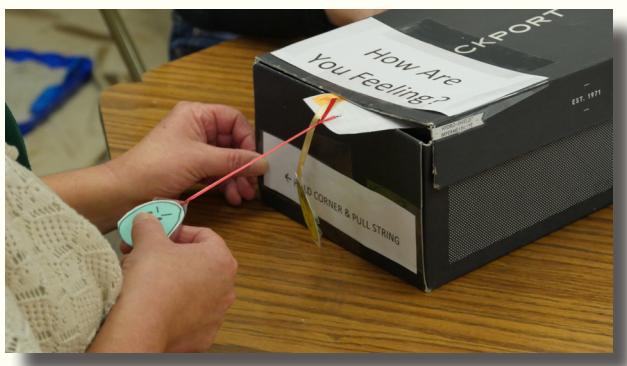
The counselors could picture parents using E.D.D. to engage with their child and discuss emotions. They were concerned about the box's sturdiness and noted that the band resistance was too tricky. Overall the counselors found the interaction to be “fun” and “novel.” They thought this would translate into children using the prototype. Counselors requested there was a more extensive array of emotions than what we presented on the prototype.

	Counselors n = 3	Parents n = 3
Method	One-on-one usability test	Usability test/focus group
Scenario	A student comes in for a counseling appointment. You have this new tool in your office that's intended to identify how they are feeling	We would like to act out how this box might be used in a scenario when your child is upset. Do you have a recent example we could use? (identify scenario and act it out)

**Figure 10:** Usability Test Scenarios



**Figure 11:** Participatory interview was a part of our user testing plan



**Figure 12:** Counselors test and interact with E.D.D. by pulling on the string to reveal the Emotions Card

## Parent Testing Results

Parents found it natural to use this prototype. They liked the idea of physically engaging the child in an activity that might help both the parent and the child cool down at that moment. Parents used the prototype as an opportunity to gain a deeper understanding of the feelings the child had, reinforce positive behaviors, and encourage thinking about how the child's actions affect those around them.

Overall, parents liked the tactile nature of the prototype. The parents decided they would want the prototype to present a physical pathway of choices for how to handle an emotion when a string is pulled. They thought this might help establish a mental path for their child to remember for the future. Parents wanted their children to get some reward for interacting with the prototype and were concerned that without this, the older children would memorize the cards and would not want to communicate with the prototype.



**Figure 14:** Through the “Scenario Roleplay” method we had parents act interact with E.D.D. and our team as if they were engaging with their child



**Figure 13:** Parents were tested among their peers in focus group setting

“

**The parents used the prototype as an opportunity to:**

- 1. Gain a deeper understanding of the child’s feelings**
- 2. Reinforce positive behaviors**
- 3. Encourage thinking about how the child’s actions affect those around them.**

## Adjustments Made

Based off of our user testing results, we iterated our prototype and made the following changes:

1. Added visual elements such as instructions with icons on the prompt cards.
2. Personified E.D.D. and adjusted the elasticity of the bands to make them easier to pull.
3. Put the cards in plastic holders, which allows users to swap out content and attached them to the string to create a pathway of step by step prompts for users to follow along. This interaction breaks up the information and may help children build their a step-by-step mental method of how to deal with their emotions.

## Future Iterations

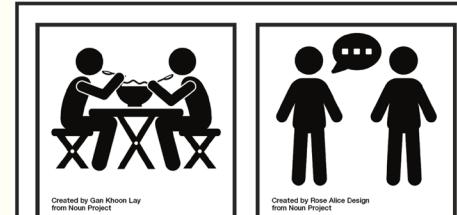
1. Explore the possibility of integrating technology and designing of accessibility.
2. Turn the interaction into a game - make positive emotions the end goal, and provide rewards when the child reaches that goal.
3. Create more negative emotion strings to help the children deal with harder feelings.
4. Test product with children & parents from different socioeconomic backgrounds.

## Measurement Of Success

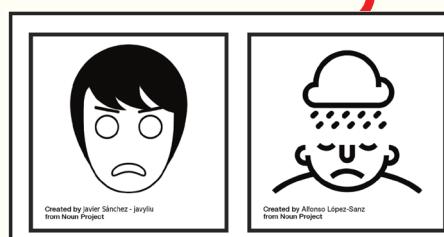
We believe parents and children will successfully use E.D.D. to facilitate conversations about how to name and deal with emotions. We will know this to be true when the child's frequency of being sent to the counseling center to deal with emotional outbursts decreases by 50%.



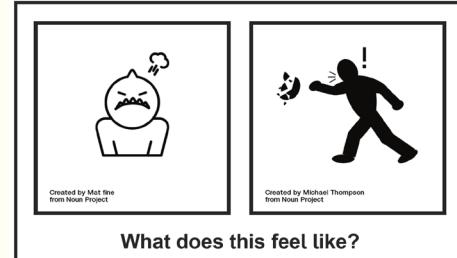
**Figure 15:** Personified Changes to the E.D.D. prototype are visualized.



How can we help each other feel better?



How does this make other people feel?



What does this feel like?



**Figure 16:** The customizable cards are spaced out along the string to allow for internalization of the emotional regulation process.

# Appendix

## Sources

ICONTRACK, et al. Noun Project.  
thenounproject.com/.

## Supplimentary Materials Links

1. [Research Question Spreadsheet](#)
2. [Project Declaration](#)
3. Autoethnography Artifacts [1](#) and [2](#)
4. [Interview Script](#)
5. [Summary of Research Findings](#)
6. [Sketches & Summary of Ideation Session](#)

<b>Needs Wants Goals</b> <ul style="list-style-type: none"> <li>Needs to be able to provide more support to parents who want to improve their child's home life</li> <li>Wants to efficiently pass on her knowledge.</li> <li>Hopes that all students learn to live their life as their best self.</li> </ul> <b>Environmental Context</b> <ul style="list-style-type: none"> <li>As a counselor Karen constantly hears from parents that students are privately experiencing struggling.</li> <li>Counselors are responsible for proactively engaging students in "Career and Personal Growth, and Academic Progress".</li> <li>Karen collaborates with students to develop a plan for improving their behavior. For example they might address issues such as emotional regulation, anxiety, or depression.</li> <li>She struggles to engage parents (who are struggling to make ends meet) in manners that improve the home life of the student.</li> </ul>	 <p><b>Karen McTicktock</b></p> <p>"School should be a safe place for all students to learn and play and it is the job of each teacher to ensure that safety"</p>	<b>Motivation Influences</b> <ul style="list-style-type: none"> <li>Karen became a counselor in low income school to help students learn how they may grow up to be healthy functioning adults.</li> <li>She has seen enough students become a product of the poorly run system both inside and outside of the school. Over time, her attitude has shifted to focusing solely on students rather than deal with the bureaucracy related to them.</li> <li>Since this is her last year before retirement, she has become more relaxed in her approach to work.</li> </ul> <b>Tech Experience</b> <ul style="list-style-type: none"> <li>Karen's relationship with technology over time has seen her strategies not to be fatigued by technology.</li> <li>When she has to voluntarily learn, she will complain that it is the technology's fault as she drags herself through the learning process.</li> <li>She prefers to interact with students through other mediums, such as board games, worksheets, instead of computers due to her understanding of how screen time affects the children's brain.</li> </ul>
<b>Demographic:</b> <ul style="list-style-type: none"> <li>35 years of teaching</li> <li>Retiring soon</li> <li>Late Stage Adopter</li> <li>Enjoys long hikes with her dogs</li> </ul>	<b>Values:</b> <ul style="list-style-type: none"> <li>Dependability</li> <li>Knowledge</li> <li>Growth</li> <li>Respect</li> <li>Open-mindedness</li> <li>Consistency</li> <li>Honesty</li> <li>Efficiency</li> </ul>	

<b>Needs Wants Goals</b> <ul style="list-style-type: none"> <li>Wants a better understanding of her students' safety when they are outside of the classroom.</li> <li>Wishes for access to state of the art technology, like 3D printers or VR, in her classroom to inspire her students everyday.</li> <li>Does not want another "thing" she has to take care of in the classroom.</li> <li>Always looking forward to her next cup of coffee</li> </ul> <b>Environmental Context</b> <ul style="list-style-type: none"> <li>Does not have a door on her classroom so she is constantly worried about student leaving without permission.</li> <li>Begged to take on everyday duties and stresses of teaching that the workload comes home with her.</li> <li>She feels supported by her teacher colleagues, but is let down by the school districts lack of funding.</li> <li>She has access to Chromebooks for her students, but does not know how to bring more innovative technology and learning tools into the class.</li> </ul>	 <p><b>Sabrina Spellman</b></p> <p>"Why hasn't my classroom made it to the 21st century?"</p>	<b>Motivation Influences</b> <ul style="list-style-type: none"> <li>Loves how technology has been utilized in higher income schools to keep students engaged in the learning process.</li> <li>Desires to take the task of classroom funding to help address common problems in the classroom.</li> <li>Used to attend teaching conferences, but became less interested in lateral career growth.</li> </ul> <b>Tech Experience</b> <ul style="list-style-type: none"> <li>Comfortable using a personal computer for editing photos and developing worksheets.</li> <li>Learning about Google Suite by teaching herself about Slides.</li> <li>Considers herself an Intermediate Apple user.</li> <li>Occasionally updates herself on the latest technology that would be possible for her to use in the class.</li> </ul>
<b>Demographic:</b> <ul style="list-style-type: none"> <li>20 years of teaching experience</li> <li>3rd grade instructor</li> <li>Early Majority Adopter</li> <li>She does Yoga to clear her mind</li> <li>Watches Netflix while grading</li> </ul>	<b>Values:</b> <ul style="list-style-type: none"> <li>Integrity</li> <li>Responsibility</li> <li>Rapidly fading</li> <li>Persistent</li> <li>Ambitious</li> <li>Pragmatic</li> </ul>	

<b>Needs Wants Goals</b> <ul style="list-style-type: none"> <li>Desires to see positive treatment outcomes for her students.</li> <li>Needs help balancing her daily caseload of students.</li> <li>Administrates the students' treatment program. She must set realistic goals and document progress of the student.</li> <li>Hopes to educate parents, families, and teachers on how to support the treatment plan.</li> </ul> <b>Environmental Context</b> <ul style="list-style-type: none"> <li>Busy with minimal time to fully explore different options for each individual student.</li> <li>Olivia is constantly taking patient notes on her phone, and then transferring them to her computer later for formal write-ups.</li> <li>She has a therapy room to classroom to help her students.</li> <li>Hosts a therapy playroom in her classroom for more intensive work.</li> </ul>	 <p><b>Olivia Thomas</b></p> <p>"Patience is also a form of action"</p>	<b>Motivation Influences</b> <ul style="list-style-type: none"> <li>Olivia has a large caseload of students but is motivated by patient progress.</li> <li>She sometimes feels that treatment outcomes are not always visible right away but take time. It can feel like an uphill battle and at times she has to negotiate with students to get them to engage in therapy.</li> <li>When a student achieves a goal now she remembers why she chose this profession and celebrates the achievement.</li> </ul> <b>Tech Experience</b> <ul style="list-style-type: none"> <li>Olivia is an expert at formating and writing up reports for her caseloads.</li> <li>She likes to take notes on her smartphone.</li> <li>She also favors OT techniques that employ the use of technology to assist students in fulfilling their daily tasks.</li> <li>She encourages some students with limited mobility to read on tablets because they can use voice commands to turn the page.</li> </ul>
<b>Demographic:</b> <ul style="list-style-type: none"> <li>28 years old</li> <li>Occupational Therapist (OT)</li> <li>Early Tech adopter</li> <li>Enjoys learning about OT in her spare time</li> </ul>	<b>Values:</b> <ul style="list-style-type: none"> <li>Altruism</li> <li>Dignity</li> <li>Equality</li> <li>Fairness</li> <li>Justice</li> <li>Prudence</li> <li>Truth</li> </ul>	

## Supplimentary Materials Links cont.

7. [Video of Parent Pitch](#)
8. [Additional Photos and Videos](#)
9. [Business Model & Value Proposition Canvas](#)
10. [Usability Testing Script & Summary](#)
11. [User Testing Coded Data](#)
12. [Full User Personas \(as seen below\)](#)
13. [Video of Parent Pitch](#)
14. [Additional Photos and Videos](#)
15. [Business Model & Value Proposition Canvas](#)
16. [Usability Testing Script & Summary](#)



## Acknowledgements

To the many participants and educators who donated their precious time to collaborate on our User Centered Design project, we wanted to say

**"THANK YOU!"**

The perspectives that were provided to us by Subject Matter Experts (SME) were crucial in our decision-making process. Therefore we are grateful to have received positive reception about E.D.D. amongst SME; as one teacher stated:

**"I (would) love E.D.D. as a tool to help parents focus on healthily helping their kid process emotions at home."**