

Tier 1 Interoception Interventions in an Elementary School

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Abstract

Interoception, or the perception of one's internal body signals, is a building block for emotion regulation and may be protective against adverse health experiences. Interoception is not innate but is rather a skill that must be learned as a person ages. While elementary schools tackle many facets of development, there are minimal interventions to address interoception. The main site is an elementary school in a high poverty neighborhood that offers a large amount of support to students in many areas but did not have any formal interoception interventions. This capstone project developed a tier 1 interoception intervention, piloted the intervention, educated teachers on interoception, and presented the intervention to staff members to address continued use of the intervention. The program that developed was a 6-session program implemented over 6 weeks adapted from *The Interoception Curriculum: A Guide to Developing Mindful Self-Regulation* for use in the inclusion general education elementary classroom. The program showed weak quantitative evidence but strong qualitative evidence showing the program was successful at addressing interoception in the participating classrooms by increasing body awareness, vocabulary for expressing needs and emotions, and increasing related communication. Along with the success of the pilot intervention, facilitators and barriers to continued implementation were found and analyzed using the Consolidated Framework for Implementation Research (CFIR). Facilitators to future implementation were found to include the innovation, the compatibility, resources and connections in the inner setting, and the need of the individuals. Barriers to success included structural characteristics of the inner setting and the capability and motivation of implementing individuals. This project details the development of a tier 1 interoception intervention for elementary school students.

Keywords: interoception, elementary, tier 1, implementation framework

Tier 1 Interoception Interventions in an Elementary School

“How are you feeling?” is a fairly simple question to an adult. It is understood that the asker is most likely trying to figure out the emotions and internal sensations felt by the target. But how does an individual determine what they are feeling? This is through a sensation called interoception, the perception of one’s own bodily signals. Interoception is not innate; it must be learned. Consider how babies are only able to cry. They cannot explain why they are upset or what is wrong. Being able to identify bodily sensations, what they mean, putting words to it, and making adjustments to fix the problem is all involved under interoception, and can take time to learn. Now consider a classroom full of 25 7-year-olds, all at different levels of development of interoceptive and emotion regulation skills and imagine the concerns which may develop. This is a common situation many classroom teachers experience and struggle to approach.

Interoception has been suggested to increase emotional awareness and therefore facilitate application of emotion regulation strategies (Tan et al., 2023). This research shows that the first step to using emotion regulation strategies is to identify the bodily signal. Students cannot be fully expected to apply emotion regulation strategies without the ability to perceive and understand their emotions and bodily signals. Another study showed a similar conclusion in that people with low interoceptive abilities struggled more to verbalize their feelings as well as modulate the impact of negative emotions (Zamariola et al., 2019). Again, it is shown that emotion regulation strategies are harder to implement without the understanding of one’s emotions, which is tied greatly to interoception. Current research shows that interoception has a large role in emotion regulation as it is often a precursor to emotional awareness and therefore application of emotion regulation strategies.

The main elementary school site is a K-6th grade school in a local school district in Indianapolis. It is currently staffed by one occupational therapist (OT) who works both individually and in small groups with students. The school uses social emotional learning curriculum to address emotion regulation, but still has issues with behavior in the classroom and independent application of emotion regulation strategies. The OT engages some students in interoception-related curriculum, but there is no widespread knowledge or use of interoception. Students and teachers at the elementary school lack knowledge and understanding of interoception, therefore decreasing the efficacy of their emotion regulation strategies currently in use. The purpose of this capstone will be to increase group interoception interventions at the local elementary school in order to increase students' knowledge and self-efficacy of self-regulation strategies.

Needs Assessment

Process

The Needs Assessment involved the student reviewing the community and site needs, the current literature, and a direct interview with the site. Community profile information was collected from map data, reports from the Indiana Department of Education, and personal communication with the site mentor. The site profile was mostly retrieved from the site interview with the site mentor. Literature was relied on heavily to determine the benefits and need for interoception-based tier 1 universal interventions for school-aged children. This process was highly site-specific and used information from and about the site to ensure the needs were identified.

Community Profile

The elementary school site is located in a major school district in Marion County, Indiana. The school has a total of 738 students in 2021, with 55% white, 27% Hispanic, 11% Black/African American, and 5.4% multiracial (Indiana Department of Education, 2021b). 77% of the students are classified as economically disadvantaged, and all students receive free breakfast and lunch through the Community Eligibility Provision (CEP) due to the high poverty of the area (Indiana Department of Education, 2021a, 2021b; Personal communication, March 9, 2023). In 2021, 16% of students were classified as English Learners and 13% students with disabilities (Indiana Department of Education, 2021b). The school receives Title I education funds due to the low socioeconomic status (SES) of the students served. Title I small group support for academics is provided to any student who is struggling academically, regardless of personal SES. The school also has a Language Acquisition Program (LAP) for English language learners. LAP support can be push in, pull out, small group, or one-on-one support with teachers and paraprofessionals skilled in teaching English language.

Site Profile

The elementary school currently has OT services in the building 4 days a week for students in kindergarten through 6th grade. The OT mostly works with students who have Individualized Education Plans (IEPs) and receive other special education support. Students receiving services have diagnoses of other health impairment (OHI), autism spectrum disorder, developmental delay, and others. The OT caseload sits around 50 to 60 students. Most students receiving special education services are in a general education classroom with special education inclusion support, but there is one separated classroom for students with high behavioral needs. The school does not have a classroom for the district's Intense Intervention for Exceptional Needs program. All students attend specials classes of art, music, STEM, physical education, and

media. Students receive social emotional learning through a program implemented by classroom teachers. The OT on staff does one-on-one sessions as well as small group sessions. The elementary uses the Multi-Tiered Systems of Support (MTSS) model to identify and intervene with students at risk of poor academic performance. The school's MTSS team is made up of the assistant principle, classroom teachers, special education teachers, the OT, Title I teachers, and any applicable staff who work with a student. The OT will see and intervene with students who have IEPs, but also students in the MTSS process without IEPs.

Site Interview

An interview with the site was conducted on March 9th, 2023, between the student and the site mentor via Zoom. The student and the mentor discussed the current situation at the elementary school and the possible needs that could be addressed through the capstone. Through the interview, it became apparent that the school was lacking in tier 1 OT interventions, especially related to interoception, due to barriers from the COVID-19 pandemic, the newness of the mentor at the school, and the lack of billable minutes. However, the site mentor shared that she was interested in implementing group interventions and has done so in the past at previous jobs. The site mentor identified that students lack emotion regulation skills. The current supports in place are a social emotional learning program and teacher-led interventions. However, there is a gap as the students are currently unable to identify when they need to use such interventions independently, leaving the impetus and responsibility on the classroom teacher to implement. From this interview, information on the current state, the gap, the need, and a proposed solution of project development and research on interoception tier 1 interventions was determined.

Gap Analysis

Current State

As identified previously, the school currently has emotion regulation supports in place of a Social Emotional Learning program and teacher competence in providing interventions. The school is located in a low-income area and has environmental risks for physical and behavioral deficits. There are multiple warning signs that students have difficulty with interoceptive awareness, including but not limited to bathroom accidents in students who toilet independently. There are no tier 1 interventions led by the OT on staff happening currently. There are few interoception interventions currently in place, some of which are tier 2 group interventions. This current state leaves room for growth, which is desired by the site.

Desired State

While the site currently has some interoception interventions currently occurring, there is a desire to increase quantity, include students not receiving special education or therapy services, and an increase of teacher buy-in and understanding. The OT has previously done general classroom interventions on interoception and wants to return to these sessions. Three major barriers to implementation have been identified. General classroom intervention is currently not billable through Medicaid and therefore is not reimbursed. This is a major barrier as whole classroom intervention could be highly beneficial but is limited due to funding. The OT is also in a new position, only starting at the school in the last few years. This means there is a barrier of relationship building between classroom teachers, administration, and therapy services. The final major barrier is the lack of time. Schools have restrictive schedules and a long list of requirements they must meet in a school year. Classroom teachers do not always want to give up precious teaching time and OTs need to meet the needs of their entire caseload. Time is a major constraint in this setting.

Goals related to group interoceptive intervention have also been identified. One major goal the OT noted as a benefit from whole classroom intervention is the increase of teacher understanding of interoception principles. The OT noted that it would be beneficial for teachers to learn the terminology and tools related to interoception. The OT also shared that it would be beneficial for students on the therapy caseload to receive this education both in the general classroom and in smaller, targeted groups.

The OT at the elementary site desires a sustainable increase in group interoception interventions but is currently limited in their ability to implement this want.

Identified Gap

Along with the barriers explained above, there is a gap between the current situation and the desired state. All students currently participate in social emotional learning as provided by their classroom teacher, but the program currently used focuses more on social skills, being kind, and goal setting (Personal communication, March 9, 2023). Some students struggle with the curriculum as it is not very concrete and specific, leaving students confused on how to apply the ideas. Another major gap in the current interventions is that the teachers do a great job at coming up with calming strategies, but students do not currently have the ability to independently use them. Due to the lack of training on listening to body cues, while the calming strategies work well, they are always teacher-initiated (Personal communication, March 9, 2023). This adds stress onto the teachers and reduces the independence of the students to be able to regulate themselves. The lack of self-efficacy from the students also reduces the ability for students to regulate outside of school hours, which is important in a district where majority of students are in a lower socioeconomic status and are most likely exposed to difficult and traumatic events outside of school. By increasing the students' self-efficacy, especially related to interoception, it

will improve their ability to participate in the classroom but will also improve occupational engagement outside of school hours.

Literature Review

Benefits of Interoception

Interoception has been shown to have many positive impacts on mental health, physical, and even cognitive function. Due to the complexity of the brain, causation is almost impossible to prove. Therefore, most of the research shows correlations or contributions of interoception and positive qualities, but this is still strong evidence due to the constraints of researching the complex brain.

Research has shown contributions of interoception within mental health disorders and physical wellness. People with Major Depressive Disorders had poor performance in an interoceptive accuracy test (Zhou et al., 2022). Another review showed that six studies showed that people with moderate depressive symptoms showed the largest interoceptive deficits compared to healthy adults (Eggart et al., 2019). One study looked at how people with alcohol use disorder have decreased interoceptive accuracy and interoception in these individuals is correlated with craving and emotion dysregulation (Wiśniewski et al., 2021). There is also cross-sectional evidence showing an association of higher BMI and deficits in interoception (Robinson et al., 2021). A longitudinal study of 436 adolescents aiming to determine if interoceptive deficits predicted eating disorder and suicidal ideation found that baseline interoceptive deficits significantly predicted eating disorder symptoms 6 months later and interoceptive deficits seen at 6-month follow-up significantly predicted suicidal ideation at 12-months (Perkins et al., 2021).

This evidence shows the association of interoceptive deficits with physical and psychological symptoms such as Major Depressive Disorders, alcohol use disorder, high BMI,

eating disorders, and suicidal ideation. It is known that interoception is significantly associated with these health disorders, therefore increased interoception would be protective against and lower the risk for youth to develop these disorders later in life. Interoception has been shown to impact many levels of health, so kindling it at a young age can be protective against further negative health effects.

Interoception Interventions

There are multiple interoceptive curricula used as interventions. One of the most popular is the Zones of Regulation. The Zones of Regulation (Zones) were published in 2011 and is a curriculum often used for Social Emotional Learning (SEL) as well as in individualized treatment. While the Zones are used in SEL, they have a large focus on interoception by increasing a student's self-efficacy in determining their own body sensations. There is limited evidence on the effectiveness of the Zones, but the program was built based on a literature review. One study looked at phenomenological experience of a teacher instructing 3rd and 4th grade students using the Zones. Through thematic analysis, students showed common themes of self-awareness, empathy, acceptance, influence and empowerment, and student activity. From observations, improvements in self-regulation skills and strategies were found (Munro, 2017). Another study used the Zones with three elementary students with autism spectrum disorder (ASD) or attention deficit hyperactive disorder (ADHD) who showed consistent non-participation behaviors in the classroom. The study concluded that the non-participation behaviors decreased and there was direct observation of the students using the strategies. However, the study did not show conclusive evidence that the effect was long-lasting (Quale, 2019). Another study looked at a classroom of 24 third grade students and the number of conflicts in the classroom before and after implementation of the Zones. There was no evidence

in an increase or decrease in conflicts following implementation, but interviews with four students showed identification of more specific feelings compared to less specific feelings pre-intervention (Hoffman, 2018). There is limited and mixed evidence on the effectiveness of the Zones, however it has resulted in some positive results in the few studies.

Even though the Zones of Regulation has minimal research, it is the most researched interoception intervention currently. *The Interoception Curriculum: A Guide to Developing Mindful Self-Regulation* is another intervention curriculum with one study on its effectiveness. The study was also conducted by the creator of the curriculum, so there is a concern about conflict of interest. The curriculum was used for 14 autistic students ages 9-19 in a self-contained school for 25 weeks. Statistically significant improvements were found for interoceptive awareness and emotion regulation (Mahler et al., 2022). While this curriculum showed positive outcomes, it is limited by the lack of research and the conflict of interest of the author.

Another interoceptive intervention is The Alert Program. This program is focused more on sensory integration and the recognition of arousal related to sensory input, but still uses interoception principles. This program was implemented in 17 schools in Ireland for 85 students ages 12 and 13 with social, emotional, and behavioral difficulties. Teachers, students, and occupational therapists reported an increase in learned self-management strategies. 84% of students reported that they would use one of the strategies in the classroom. The teachers noted a desire for a whole-school intervention to be more transferrable as a remaining gap following the program (Mac Cobb et al., 2014). This study gives good insight into the effectiveness and perceived impact of The Alert Program in Irish schools. However, the research surrounding The Alert Program has been reviewed to range between weak to moderate strength of evidence as of a 2018 critical review, showing that the evidence around this program varies (Gill et al., 2018).

The Alert Program has some evidence showing positive outcomes but is specifically focused on sensory integration aspects of interoception.

There is no set industry standard for interoception interventions in pediatrics, but there is some evidence supporting the Zones of Regulation, The Interoception Curriculum, and The Alert Program. In general, there is a lack of strong evidence for any of these programs specifically, showing the need for further research into interoceptive curriculum. The existence of the current curriculum shows promise for the future of this area of practice for pediatric occupational therapists.

Theory

Multiple theories will be used to direct this project. The main theory that an intervention targeting interoception will use as a theoretical foundation is the Ecology of Human Performance (EHP) framework (Dunn et al., 1994). EHP expands on the relationship between the person, context, task, and performance. Person factors, along with the personal experiences of those factors, form a lens which in combination with the person's skills forms the performance range, or the number of tasks in the environment the person can participate in. This model is relevant to this project as the project aims to address the students' skills, abilities, and experience of those abilities by encouraging interoceptive awareness. By improving the person factors, the client will have a larger number of tasks they can accomplish, leading to increased occupational participation through this model. This model gives a foundation for why addressing interoception is important for occupational performance through the importance of person factors and the experiences of those factors on task attainment.

Another area where theory will be important is through the educational aspect of the project. The program will involve instructing both students and teachers, which will require the

OT student to lean heavily on the Four Quadrant Model (4QM) and Adult Learning Theory (Collins, 2004; Greber et al., 2007a, 2007b; Knowles, 1978). The 4QM will be used in relation to teaching the children about interoception, using the scaffolding quadrants for skill acquisition through learning as described by the model (Greber et al., 2007a). This will help the intervention ensure the selected teaching methods match the dynamic needs of the student. Along with this model, Adult Learning Theory will be applied to the educational intervention for the teachers at the school. Since teachers are adults, the theory states that they will learn differently from children. The theory identifies different tenets and strategies to use, such as making the material applicable to real life and explaining the why behind learning (Collins, 2004; Knowles, 1978). This theory will increase the success of teacher-focused intervention by ensuring the teaching style matches the learners' needs.

Since the project itself will be at the community-level, the PRECEDE-PROCEED framework will be used to direct the steps of community-level programming (Fielding et al., 2022). This framework offers directions for creating, implementing, and monitoring health programs. This evidence-based framework offers insight to the best way to implement community programming, which the tier 1 interventions at the school will be. Therefore, this framework will offer a model from which to formulate an effective and change-inducing health promotion intervention.

The school uses the Multi-Tiered Systems of Support (MTSS) framework to identify and intervene for children at risk of low academic achievement. The main goal of using MTSS in schools is “to provide academic, behavioral, and social emotional support, grounded in culturally responsive practices, to all students” (Indiana Department of Education, 2023, p. 102). The framework hinges on multiple tiers of identification and support for students. While MTSS is not

a well-regulated term, scholars have defined it as, “the integration of a number of multi-tiered systems into one coherent, strategically combined system meant to address multiple domains or content areas in education” (McIntosh & Goodman, 2016, p. 5). At the core of MTSS framework is the three-tier system, described as levels of prevention, types of support for students, or tiers of instruction. These different titles all essentially mean the same thing with the three levels meaning tier 1 as universal or core curriculum, tier 2 as targeted or strategic, and tier 3 as intensive or individualized (McIntosh & Goodman, 2016, p. 13). Education systems, specifically public elementary and secondary education, use this framework to provide multiple levels of support to students in the school and this project will draw on this framework to guide the interventions at specific tiers.

The goal of the interoception interventions is to increase self-regulation, which comes from Bandura’s Social Cognitive Theory of Self-Regulation. Bandura posits that there are three foundational processes needed for self-regulation: self-monitoring of the causes and effects of one’s behavior, judgement of one’s behavior relative to standards, and the affective self-reaction. Notable, the self-monitoring level can be considered as interoceptive awareness by noticing body states (Goodall et al., 2022). Bandura notes how behavior must be internally directed which allows people to have control over their thoughts, feelings, motivations, and actions. Bandura states in his original paper that, “success in self-regulation partly depends on the fidelity, consistency, and temporal proximity of self-monitoring” (Bandura, 1991, p. 250). Bandura’s theory gives theoretical basis for using interoception interventions in order to reach the goal of this project, which is better self-regulation.

Finally, interoception itself has been considered as a theory of self. Scholars have identified interoception as part of a theoretical model of the neurocognitive mechanisms

underlying consciousness, viewing emotions as interoceptive inference (Seth et al., 2012). This idea offers that sense of self, emotions, and self-awareness are all heavily tied to interoception. Another work draws on this idea but expands it by suggesting a predictive aspect to interoception, impacting the experience of consciousness (Farb et al., 2015). These theoretical ideas of interoception will also be drawn upon through the project to strengthen the meaning behind the intervention. However, most of the focus will be placed on the occupational and learning theories previously explained.

Capstone Project Plan and Process

Goals

The following goals were created following the knowledge gained through the literature review and needs assessment prior to the student starting on-site:

Project Goal 1: Student will create and implement a tier 1 (whole class) interoception intervention to 1 elementary school classroom.

Objective 1: Student will complete a needs assessment to determine what aspects of interoception need to specifically be addressed, using observation, interview, and teacher input.

Objective 2: Student will create a program manual for the proposed tier 1 interoception intervention using evidence-based techniques.

Objective 3: Student will implement a whole-class intervention for at least three sessions in one elementary school general classroom.

Project Goal 2: Student will provide education to teachers on interoception, classroom management, and student wellbeing.

Objective 1: Student will create an interactive presentation using principles of

adult learning theory on the promotion of interoception for children.

Objective 2: Student will create simple and accessible handouts to provide to all elementary school teachers.

Objective 3: Student will present presentation and handouts to teachers in a formal meeting.

Process

Guided by these goals, the following process was created. The capstone experience was scheduled for 14 weeks spanning from January 8 to April 12, 2024. The student began on-site work on January 8. The first two weeks involved building rapport, becoming acclimated to the site, and building the curriculum based on the needs of the site. Through collaboration with the site mentor, the participating classrooms were chosen, the overview of the lesson plans were created, and the teacher education presentation was created. Week 3 involved preliminary data collection, the teacher education session, and the creation of lesson plans for the classroom interventions. Weeks 4-9 involved implementation of the curriculum as well as continued adjustments to individual session materials and tier 2 and 3 interventions on the same interoception topic. Week 10 involved collection of post-intervention data. Weeks 11-12 involved data analysis and project report write up. The final two weeks included ensuring sustainability of the project through expanding materials to allow for reproducibility of the intervention, presenting the materials and project to building administration, the special education team, and all district occupational therapists, and finalizing on-site duties. Throughout the 14 weeks, clinical experience was strewn throughout as the student worked with elementary students on the OT caseload at two elementaries. The capstone student spent most of the time at the primary site elementary school, but no more than one day a week was spent at another

elementary in the district at which the site mentor OT covered. The capstone student also spent some time working from their university's campus for administrative tasks and deskwork. Most notably, weeks 11 and 12 were spent on the university campus due to the elementary school being closed for spring break.

Capstone Project Implementation

During the first two weeks, the participants for the project were identified through collaboration with the site mentor. Two general education classrooms with inclusion support were targeted based on age of students, previous knowledge of classroom dynamics, teacher carryover, and scheduling ability. One hybrid self-contained special education classroom and behavior support center for the building was also initially targeted for the high needs of the self-contained students. After obtaining verbal permission from the school principal, the capstone student and site mentor approached each teacher individually and asked for verbal consent for their classroom to be part of the program. Following obtaining verbal consent, an email was sent out with further instructions and the pre-intervention survey.

The two general education classrooms were one 4th grade classroom and one 2nd grade classroom. They had a mix of students with and without special education services. The demographic makeup of the classrooms was similar to that of the school as a whole. The self-contained classroom housed 4 students with special education services who spent less than 40% of the day in a general education setting. Two students were 1st graders and two were 2nd graders.

A protocol was submitted to the Indiana University Internal Review Board (IRB) on September 15, 2023. The protocol was determined to be not human subjects research and did not require further review. The IRB determination is included in Appendix A.

Project Components

The project consisted of two major components: Program development of a whole-class intervention on the topic of interoception and education of teachers on interoception and interventions. The teacher education was completed during week 3 on-site and consisted of the three teachers whose classrooms were participating in the whole-class intervention and the site mentor. The education session lasted 45 minutes and involved an educational presentation by the capstone student and time for discussion and response from teachers. The teacher participants filled out anonymous paper surveys before and after the presentation.

The program development component was a larger component and involved multiple weeks of work. The proposed program consisted of 6 weeks of sessions, with each session lasting 30 minutes. Both general education classroom teachers were agreeable to this plan and weekly times for each classroom were set. Approximately 50 students in the general education setting between grades 2 and 4 participated in the 6 weeks of curriculum. The curriculum was adopted from *The Interoception Curriculum: A Guide to Developing Mindful Self-Regulation* due to the simple nature of the lessons, the focus on noticing of body signals, and the ability to adapt to the needs of the site. The outline of the weekly lessons is explained in Table 1. The lesson outline was followed exactly by the 2 general education classrooms. Each chapter had a slide deck prepared by the capstone student and during week 1 of implementation, a laminated body scan handout was provided to all students.

In relation to the general education group intervention, there were multiple supports and barriers to note. A major support was quick buy in from teachers to allow the capstone student to complete the program in their classroom. This buy in was also seen by the students in the classrooms as they showed interest and attentiveness during sessions. Barriers included unknown level of follow through from the teachers and students. While the capstone student gave

suggestions and resources, teachers did not necessarily use the tools regularly to continue follow through in the classroom. Another barrier was student attendance as many students were absent for one or more sessions. Some students also were in and out of the classroom during some sessions due to small group interventions for academics. Finally, classroom teachers were not always present during sessions due to personal leave or emergent situations. This decreased the efficacy of the teachers to provide follow through within their classroom.

Table 1

Weekly Lesson Plan

Week	Lesson
1	Chapter 1 - Externals Lesson 1: Hands and Fingers Lesson 2: Feet and Toes Lesson 10: Muscles
2	Chapter 2 - Face Lesson 3: Mouth Lesson 4: Eyes Lesson 5: Ears
3	Chapter 3 - Upper Internals Lesson 13: Brain and Head Lesson 11: Lungs Lesson 12: Heart
4	Chapter 4 - Lower Internals Lesson 14: Stomach Lesson 15: Bladder & bowels
5	Chapter 5 - Body Signals and Emotions Lesson 17: My Body Signals Are Clues to My Emotions Lesson 18: Each Emotion Has Different Body Signals
6	Chapter 6 - Body Signals and Emotions / Wrap-Up Lesson 19: What's the Cause of My Body Signals? Lesson 20: Creating My Body-Emotion Chart

Note: Lesson numbers correlate to lessons in *The Interoception Curriculum*

Sessions for the students in the self-contained classroom were completed individually. For chapter 1, two students participated in a small group setting, but this was not successful for the learning of either one, so following sessions were completed individually. Each student's session looked slightly different under the general structure of the program lesson outline. The

students in the self-contained classroom benefited from individualized instruction through multisensory modalities and slightly different visuals than the general education group. One student had increased struggles with participating with the information, requiring a greatly different approach to be taken. This student benefitted from sessions focused only on rapport building, minimal use of educational materials, and open-ended play and leisure-based sessions. These sessions with this student and other students in the self-contained setting consisted of the same general concepts but in a highly individualized manner for the needs of each student. Since these sessions involved highly individualized instruction and a departure from the curriculum, minimal data was collected in relation to these students.

Throughout the first 4 weeks, the need for interoception interventions was identified in additional groups of students. Through this need, similar programming was begun in tier 2 and tier 3 interventions. Two small groups were formed to participate in weekly 20-minute sessions on interoception and another student participated in one-on-one sessions with the capstone student. These sessions followed the same curriculum and program outline but were tailored to meet the needs of small group and individual intervention. These sessions did not involve data collection as they were done informally as aspects of the plans of care for students with special education services or in the MTSS process. Therefore, further information on the tier 2 and 3 interventions will not be included in the rest of this report.

To address sustainability of the program developed, the capstone student presented the materials and the program to building administration at both elementaries, the special education team (3 inclusion special education teachers and one speech-language pathologist) at the site elementary school, and 15 district occupational therapists in a semi-formal format. There were 4 total sessions which varied in length but lasted no longer than 25 minutes and included showing

all materials and where to find them, discussion of interoception and the benefits, and time for questions and clarifications. A brief questionnaire was given to determine feasibility, supports, and barriers to implementation.

Capstone Project Evaluation

Methods

Teacher Education

The three teacher participants completed a paper survey both before and after the 45-minute teacher education session. The surveys were anonymous but paired by assigning each paper an arbitrary participant number to match pre and post surveys. The pre-survey included 3 questions with a 5-point Likert scale of agreement to discover participant knowledge of interoception and strategies to address interoception in the classroom. The post-survey included the same three questions along with a continuous scale from 0-10 where participants were asked to mark their confidence level in implementing interoception strategies in the classroom. The data from these surveys were analyzed by comparing pre-post survey scores for each participant and overall descriptive statistics for the confidence rating question.

Classroom Interventions

Due to ethical concerns regarding data collection from children, all data for classroom sessions were taken from classroom teacher report. The two general education classroom teachers were asked to fill out an online survey prior to the interventions and after the interventions. The questions involved five 5-point Likert scale ranking questions on classroom management, 18 questions estimating the percentage of students who show certain behaviors in their classroom, and two choose-all-that-apply questions asking about certain positive and negative interoceptive behaviors that occurred during the school year. The post survey contained

the same questions, with the choose-all-that-apply questions regarding the previous 6 weeks, which was the time frame of the interventions. The post survey also had 5 semi-structured free response questions for qualitative feedback on the program. Initially, the special education teacher of the self-contained classroom completed the pre-survey, but once project implementation began and the differing needs of that classroom were noted, it became apparent that the manualized program and surveys were not applicable to the special education setting. Therefore, the post-survey was only sent to two general education teachers.

Data from these outcomes were organized into a table (Appendix C) to view general trends. With so few data points, statistical analysis did not provide any useful data. Therefore, these data were considered at qualitative even though they resulted in numerical responses due to the limitations of the data.

To assess sustainability of the project, surveys asking about the barriers and facilitators to future success related to implementation of the program were sent to all stakeholders who participated in the presentations of the program. The survey questions were informed by the Consolidated Framework for Implementation Research (CFIR) in order to assess the usefulness of the intervention in the future. The CFIR is a framework that aims to create an “overarching typology to promote implementation theory development” and was “designed to describe barriers and facilitators to implementation outcomes” (Damschroder et al., 2009; Damschroder et al., 2022). The framework is geared towards health sciences research in order to analyze contributors to implementation success. The CFIR involves 5 domains: innovation, outer setting, inner setting, individuals, and implementation process. Questions regarding the domains of innovation, inner setting, and individuals were created following consideration of domains which

would influence implementation in this setting. The questions and their related domains and constructs can be found in Table 2.

Table 2

Implementation Questions and Constructs

Question	Domain	Constructs Tested
Is there a need for this type of program (i.e., interoception)?	Individuals	Need
How well do you think THIS program meets the needs of your students?	Innovation	Innovation relative advantage
	Inner setting	Compatibility
What advantages and disadvantages does the program have compared to existing programs?	Innovation	Innovation relative advantage Innovation design
What barriers do you see to implementing this program?	Innovation	Innovation adaptability
	Inner Setting	Compatibility Structural characteristics
Who do you see implementing this program in your school?	Individuals	Implementation team members
How likely do you see you/them implementing this program?	Individuals	Capability Opportunity Motivation
What, if any, types of administrative supports or actions will be needed for the program to work effectively?	Inner setting	Relational connections Available resources
How confident are you that you/your colleagues will be able to use the program?	Individuals	Capability
How useful do you think the provided resources are for implementing the program?	Innovation	Innovation design
	Inner Setting	Available resources
What, if any, types of supports or actions will you need to provide to other staff to effectively implement the program?	Inner Setting	Relational connections
	Individuals	Implementation team members

The semi-structured free response questions given in the classroom teacher post-survey along with the free-response questions from the implementation surveys given to building administration, the special education team at the site elementary school, and district occupational therapists were analyzed by identifying themes. These themes were also considered through the constructs from the CFIR in order to assess the usefulness of the intervention in the future. The three domains will be considered related to the qualitative data gathered and each domain will be rated based on if it is a barrier or facilitator to outcomes.

Results

Teacher Education

Results from the surveys filled out by participants in the formal teacher education survey were analyzed by comparing pre- and post- intervention scores for each participant. Each question was scored on a 5-point Likert scale with 1 meaning strong disagreement with the statement and 5 meaning strong agreement with the statement. All participants had an increase in agreement to the 3 statements following the education session (Figures 1-3). This shows that the education session was successful as it increased self-perceived knowledge of interoception and how to implement it in the classroom. The average score on the question rating their confidence in incorporating interoception activities in their classroom was 8.3 ($SD = 1.5$) out of 10, showing high confidence in their abilities following the education session.

Figure 1

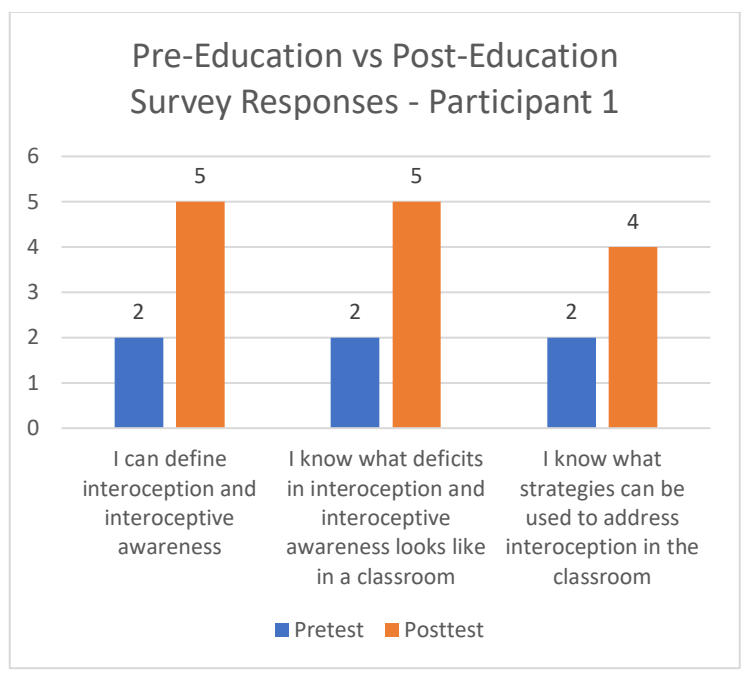


Figure 2

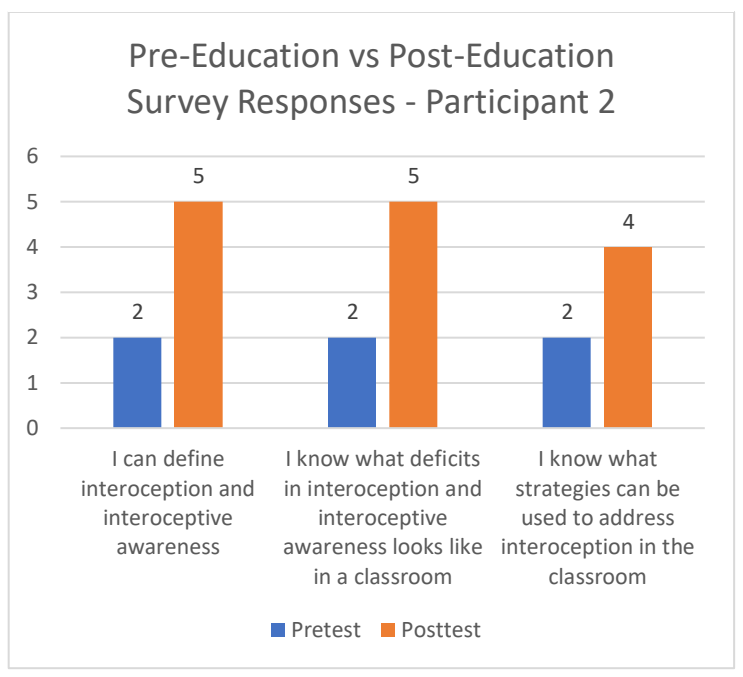
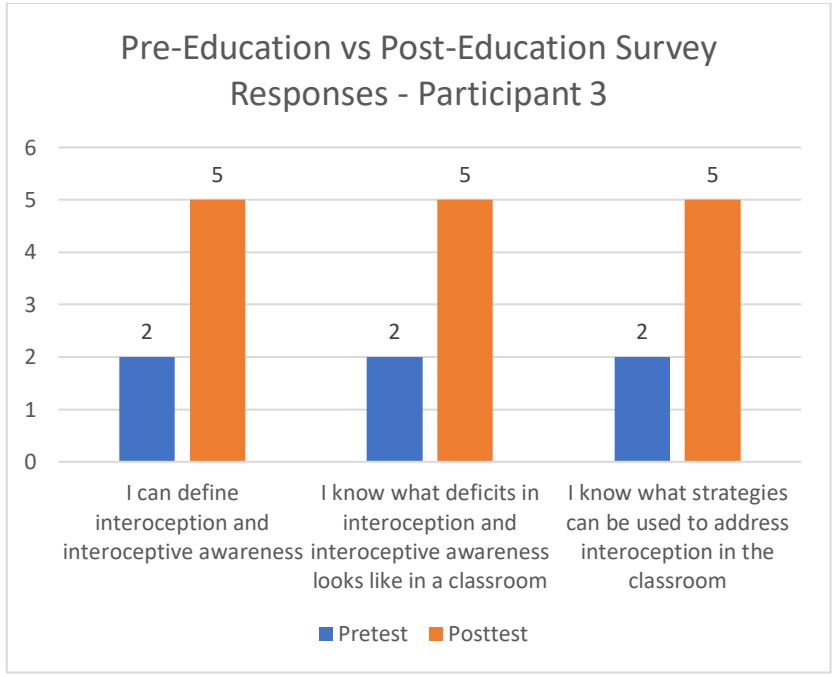


Figure 3



Classroom Interventions

Data on classroom interventions showed a baseline need for the program, with general education classroom teachers noting that at least some of their students showed behaviors indicative of poor interoception on the pre-test. While there was no major change in most responses about student behaviors, there were clear qualitative benefits stated by classroom teachers who participated. Some feedback from the teachers included:

- “I think this program has helped my students be more aware of their bodies. The body scan has been a helpful tool in them knowing how to explain what they're feeling. Overall, I think they are better able to express their needs.”
- “The kiddos really enjoyed you coming in. I feel like they are more aware of feeling[s] they are having and how to verbalize them.”
- “The students being able to verbalize their feelings is wonderful! Students learned about how their body works-lots of new information!”

These qualitative results show benefits in increased awareness of their body and feelings as well as better communication of their feelings and needs.

Another way to see the success of the intervention is the ability of students to answer questions related to interoception and complete worksheets included in the curriculum. While no data was expressly collected in this manner, anecdotal information from classroom sessions shows that during week 6, students were able to identify appropriate sensations they have when feeling certain emotions. This knowledge was shared through completion of a worksheet and sharing orally with the class. Students in the classrooms identified sensations in 10 body parts to match an emotion they chose. The expectation was they would write sensations for 5 body parts, but most of the students were able to complete all 10 and even completed another 10 for a

different emotion. This anecdotal evidence lacks data-backed strength but does show success of the program.

Implementation Sustainability

Barriers and facilitators of continued intervention following the pilot program were collected through surveys following the capstone student presenting the program to stakeholders. Descriptive statistics and data visualization of the responses to the Likert-scale questions are shown in Figures 4-8. These data show general positive attitudes towards the intervention as well as a high need for the intervention.

Figure 4

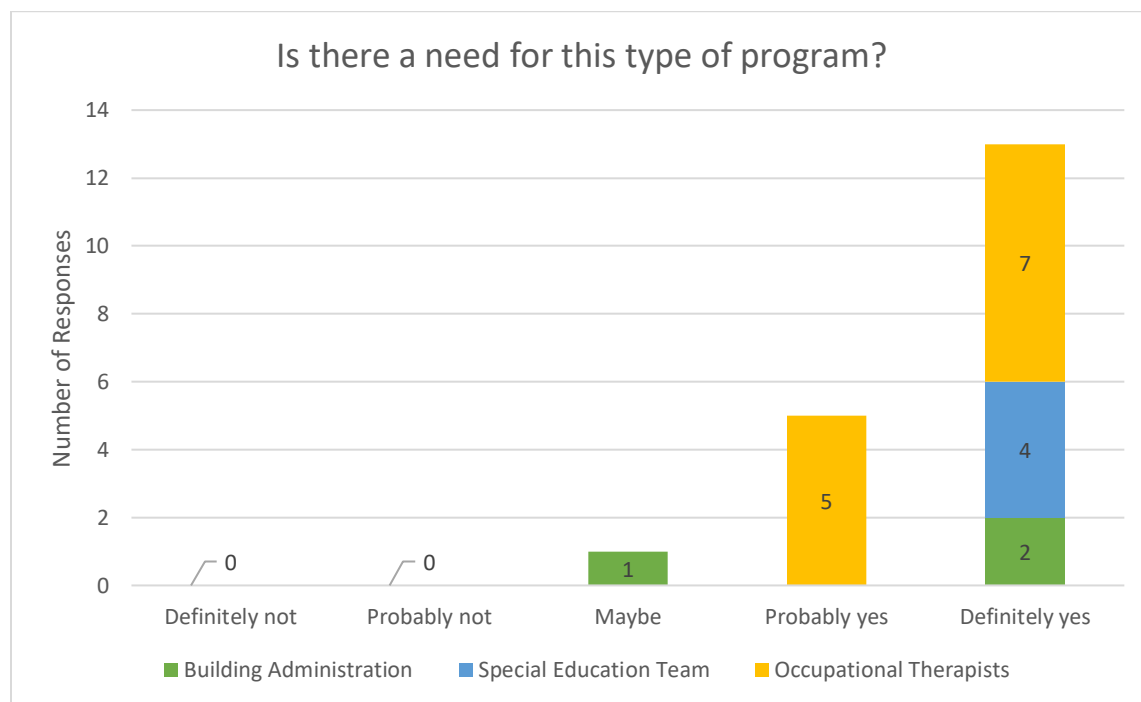


Figure 5

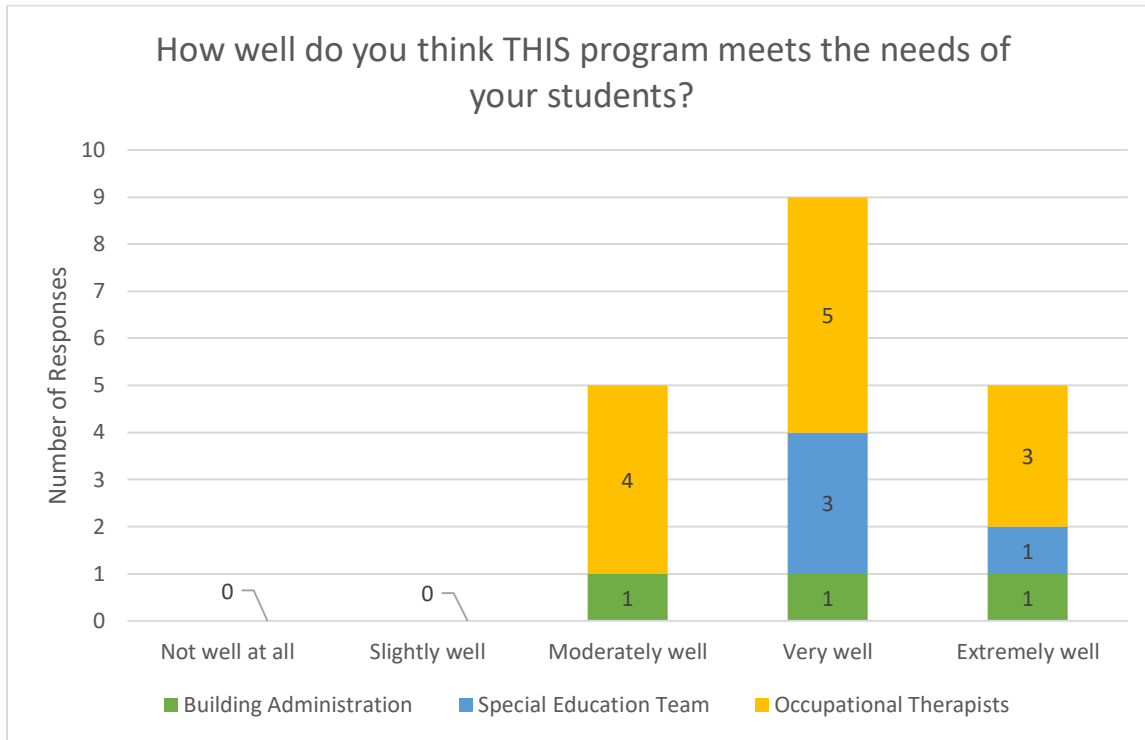


Figure 6

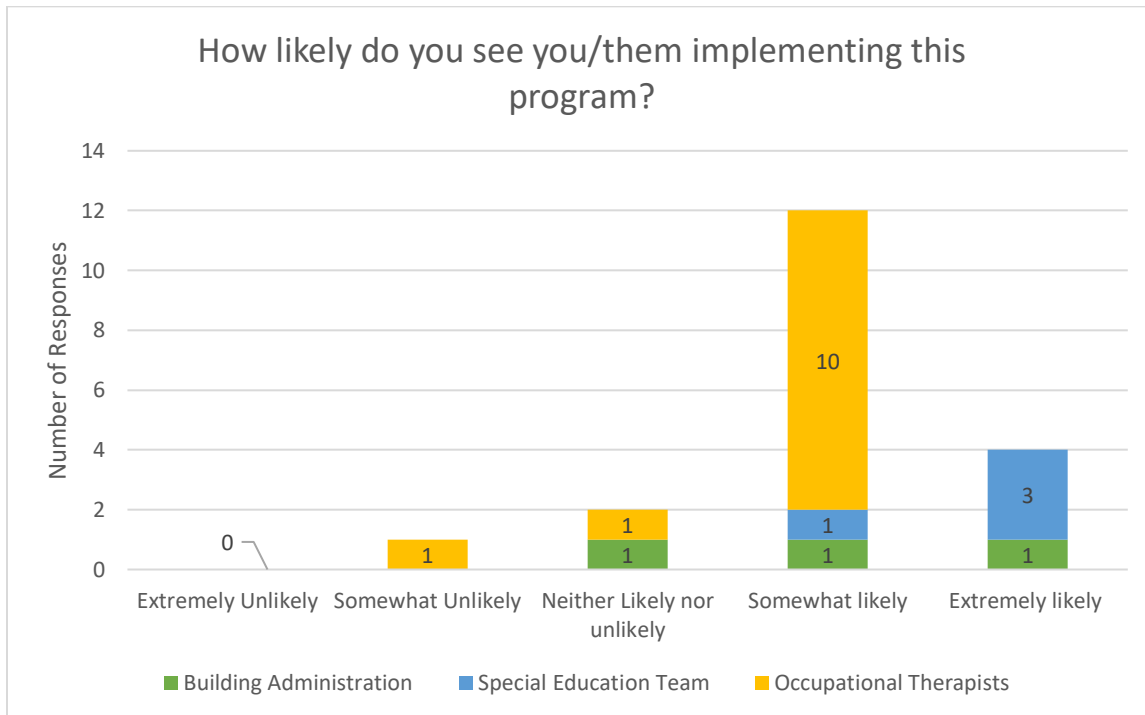


Figure 7

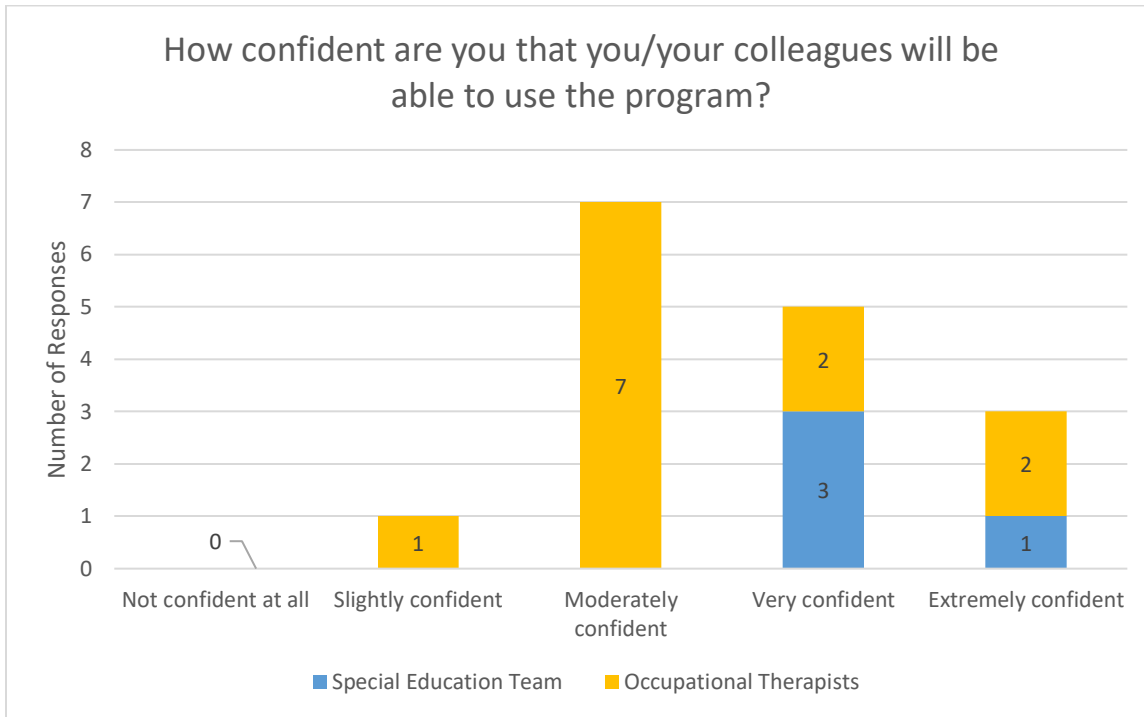
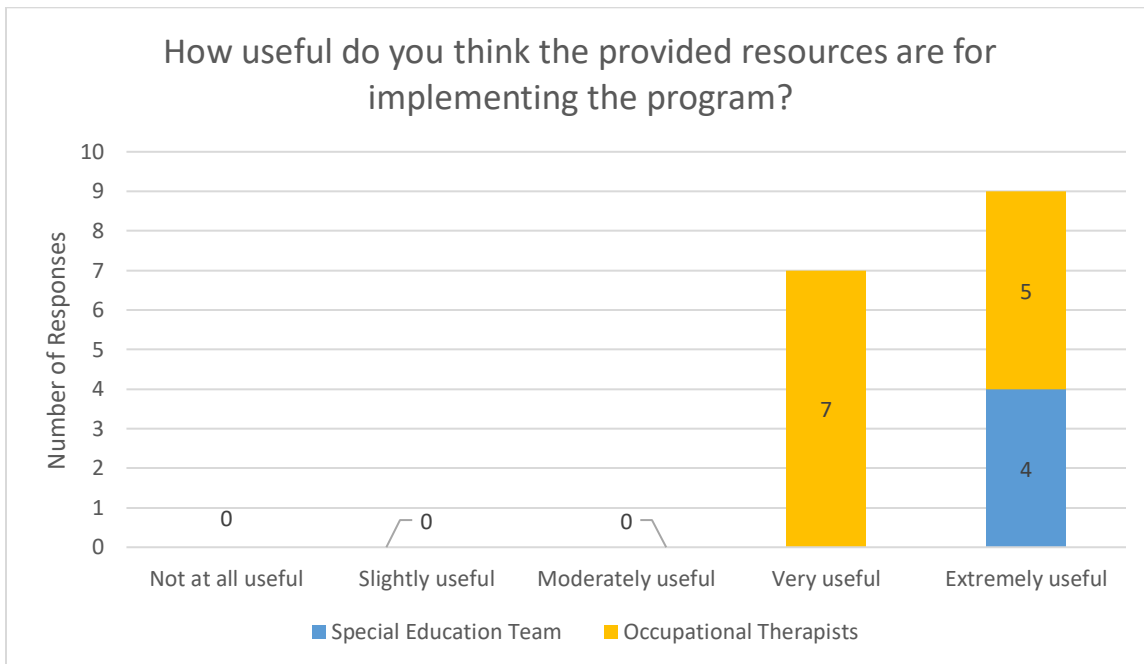


Figure 8



Data from the free response questions from both implementation surveys as well as the classroom teacher post-surveys were analyzed, and common themes were found. These themes were sorted into facilitators and barriers to implementation and can be found in Table 3.

Table 3

Thematic Analysis of Free Response

Facilitators	Barriers
Use of visuals (9, 18%)	Lack of instructional time as a barrier for initiating implementation (12, 24%)
Fills a gap in curriculum (7, 14%)	Buy in from staff (9, 18%)
Increases body awareness (6, 12%)	Consistency/follow through (6, 12%)
Provides beneficial language/vocabulary (6, 12%)	Need more time to address concepts (2, 4%)
Easy to use program (3, 6%)	

Note: the number in parentheses shows how many responses included that theme (n, % of all responses)

The surveys also asked who the respondents saw as being the implementer of the intervention in their school building. The occupational therapist was listed 12 times, special education teacher was listed 7 times, with 4 of them specifying an inclusion special education teacher and the other 3 specifying a self-contained special education teacher, and general education teacher was listed 6 times. Other implementers mentioned were speech language pathologist, social emotional learning coach, paraprofessionals, and physical education teacher.

Discussion

Interpretation of Results

Teacher Education

Data from pre- and post-test surveys show an increase in knowledge and confidence in interoception and use of interventions. The teacher education session was beneficial as teachers rated their initial knowledge as low and their ending knowledge as increased in a statistically significant way. The findings are limited by the small sample size ($n=3$), but the training showed positive outcomes in the small group. Further use of the project should continue to collect data on the outcomes of the teacher training to ensure continued effectiveness.

Classroom Interventions

Data on classroom interventions was limited as previously explained due to ethical considerations and the pilot nature of the program. While quantitative data was collected, results did not show much, if any, changes. This may have been due to the wide range of options, with teachers choosing a percentage of their class they think that behaves a certain way with options of 0%, 1-25%, 26-50%, 51-75%, and 75%-100%. These are wide ranges which may not capture the changes in the classroom. Also, the test was given immediately before and immediately after intervention with no time for effects to be visible in the classroom long term. Finally, this data was all from teacher report and therefore may not actually reflect the changes in each student's understanding of their body signals. The teachers did rate increased incidence of some behaviors showing poor interoception on the post-test compared to the pre-test. This might be due to the teachers having increased understanding about interoception and student behaviors relating to interoception by experiencing the intervention.

While quantitative data did not show major differences, qualitative data showed meaningful impacts through the eyes of the classroom teachers. They shared positive sentiments about the program and were able to list outcomes they saw in their students. The increased knowledge of vocabulary and communicating emotional needs was an area not asked about but

something both teachers independently noticed. It is also possible that the quantitative questions did not target the behaviors or outcomes that classroom teachers would notice differences in. The surveys were created with the lens of occupational therapy rather than the lens of a teacher. Therefore, discrepancies may have occurred because the teachers do not notice certain behaviors, or the questions were not written in a way that was accessible to a teacher's point of view.

Using the mixed methods approach in this project allowed for a fuller, richer view of the success of the intervention. While quantitative data did not show any noticeable changes, qualitative data painted a richer picture of the perceived benefits and behaviors that resulted from the program. The classroom program can be considered successful as evidenced by the teacher reports of increased knowledge of body sensations, improved communication of emotions, and expression of needs.

Implementation Sustainability

Using the CFIR, the possibility for sustainability and continued use of this program by the site was assessed. As previously mentioned, themes from quantitative responses were found with facilitators and barriers to future implementation. Facilitators included aspects of the curriculum, such as including visuals for alternative communication, the existence of a gap in what the site already has, and the perceived benefits of using the program such as increasing student body awareness and providing beneficial language for students to use. These themes can be mapped into the CFIR domain of innovation as they relate to the actual product being implemented (Damschroder et al., 2022). On the other hand, the barriers that were reported included the lack of instructional time for an additional intervention, decreased buy in from staff, a concern about follow through past the 6 sessions, and a concern that the program was not robust enough to address the issue. These first three barriers can be mapped to the CFIR domains

of the inner setting and individuals as they concern the school culture and the characteristics of the innovation deliverers (Damschroder et al., 2022). The last barrier listed of the program not being long enough for meaningful change relates to the innovation domain.

This perceived barrier of the program not being long enough is interesting as it in conflict with the more popular barrier of the program taking up precious instructional time. Many respondents identified the omnipresent concern of educators that there are many requirements to address and not enough instructional time to address them all. One administrator offered the idea that this program could be incorporated into the social emotional learning (SEL) curriculum the teachers are required to address, which could decrease the additional instructional time needed to implement the project. This type of change would occur at the building administration level or the district level. Therefore, it is important to get administrators onboard with the program as high-level leaders, a construct in the CFIR.

The concern that the program is not robust enough to meet the full needs of the students may also be a reflection of the concern of follow through. The program's success hinges greatly on the continued practice of the skills taught outside of formal sessions. This concern is shown in one of the responses: "[There is a] lack of additional resources. One weekly lesson for six weeks won't be enough for some students to master the sensations". While this response shows the concern of the robustness of the program, it also is tied to the core tenet of continued practice and follow through of the concepts. Another response which was concerned about the length of the program was from one of the classroom teachers who participated in the pilot, saying: "Wish we had more time!". The unique perspective of a teacher whose classroom did receive the program adds credibility to the concern. However, in this example, the capstone student implemented the sessions rather than the general education teacher. A desire for more time may

not be a complaint if the classroom teacher took more ownership of the program and incorporated the principles into daily instruction.

In the CFIR, innovation deliverers is a construct to assess regarding potential success (Damschroder et al., 2022). Since the project does not have a specific profession identified, the flexible role of deliverer can be a help or a hindrance. Participants in the presentation of the project were asked to identify who they would see implementing the program in their school. These listed professionals were mostly occupational therapist, special education teacher, and general education teacher. While a few general education teachers were aware of the program through the participation in the pilot, they were not formally presented the program. This would require the OTs, administrators, and special education team members to be implementation leads, as explained by the CFIR construct (Damschroder et al., 2022). This construct was not tested via surveys, so it is unknown whether the presentation participants would step into a lead role and if this construct would be a barrier or facilitator. On the other hand, when respondents were asked about the likeliness that them or their colleagues would implement the program, 21% rated it as “extremely likely”, 63% as “somewhat likely”, 11% as “neither likely nor unlikely”, and 5% as “somewhat unlikely”. In the same vein, when asked about their confidence in the deliverer implementing the program, 19% rated it as “extremely confident”, 31% as very confident, and 44% as “moderately confident”. While the leadership role is unknown to be a barrier or facilitator, the rating of likeliness of and confidence in an innovation deliverer overall trended positively.

To assess the overall barriers and facilitators of future implementation, data was mapped into CFIR domains and constructs. The mixed methods data was then allocated to the construct which it supported. This evidence was used to rate each construct as a barrier or facilitator and

this information is presented in Table 4. Overall, the innovation domain was perceived as a facilitator, the inner setting domain was mostly a facilitator but did include the strong barrier of structural characteristics, and the individuals domain had facilitating and impeding constructs. This information shows the potential future success of the project as well as informs needs for further implementation at the site.

Table 4

CFIR Constructs and Evidence

Domain	Construct	Barrier or facilitator	Evidence
Innovation	Innovation relative advantage	Facilitator	<p>“This program can help fill in the gap for students that have a difficult time understanding their own feelings/emotions and when they should be utilizing their strategies.” – Occupational therapist</p> <p>“We don't really have an exi[s]ting program. Definitely an area of need.” – Special education team member</p> <p>“It is more specific about how the body feels during heightened emotions than SEL curriculum we have used” – School Administrator</p>
	Innovation Design	Facilitator	<p>“User friendly, visual, concise, targeted, flexible to multiple ages” – Elementary school administrator</p> <p>“It is very visual and interactive. Our students learn best by multiple modalities, and this fits that criteria” – Special education team member</p> <p>“It is concise and seems easy to implement.” – Occupational therapist</p>
	Innovation Adaptability	Facilitator	<p>“I think that this program will be helpful because it's flexible and can be tailored to the needs of students” – Occupational therapist</p> <p>“It is simplified and applicable to various ages and easy to use in a classroom or independently” – Occupational therapist</p>
Inner Setting	Compatibility	Facilitator	26% of respondents rated this specific program as meeting the needs of their students “extremely well”, 47% as “very well”, and 26% as “moderately well”.
	Available resources	Facilitator	100% rated provided resources as “very useful” or “extremely useful”.
	Relational Connections	Facilitator	<p>“Administrative support will be important to establish the knowledge, attitude, skills and instructional time necessary for staff to implement successfully.” – School administrator</p> <p>“[As an OT, I will support by] ... helping staff feel comfortable with the materials so they feel confident enough to initiate the program” –Occupational therapist</p>
	Structural Characteristics	Strong Barrier	Lack of instructional time for implementing the project was listed as a barrier in 12 responses, or 24% of all responses.

Domain	Construct	Barrier or facilitator	Evidence
Individuals	Implementation team members	Weak Facilitator	21% of respondents rated the likeliness of themselves or their colleagues implementing this program as “extremely likely”, 63% as “somewhat likely”, 11% as “neither likely nor unlikely”, and 5% as “somewhat unlikely”. The professionals listed as implementer were occupational therapist (12 times), special education teacher (7 times), and general education teacher (6 times). However, no general education teachers participated in the presentations nor surveys.
	Need	Facilitator	68% of respondents rated that “definitely yes” there is a need for this type of program, 26% rated “probably yes”, and 0% rated “definitely not” or “probably not”.
	Capability	Barrier	19% of respondents rated their confidence in themselves or their colleagues to be able to use the program as “extremely confident”, 31% as very confident, and 44% as “moderately confident”.
	Motivation	Barrier	Many of the barriers listed included staff buy-in as a barrier, with it being listed 9 times (18% of all responses included this sentiment).

Achievement of Goals

The two project goals set by the capstone student included creating and implementing a tier 1 interoception intervention in 1 elementary classroom and providing education to teachers on interoception in the classroom. Both goals were met during the capstone experience. The capstone student made and implemented the interoception program in 2 elementary classrooms, which surpassed the goal set. Objectives under this goal included completing a needs assessment, creating a program manual, and implementing at least 3 sessions. The needs assessment was completed within the first two weeks onsite. The program manual was provided as a Google Drive to all stakeholders who participated in presentation of the program. Six sessions were implemented in each classroom, adding up to 12 sessions total. The objectives under the second goal included creation of an interactive presentation for teachers, creation of simple handouts to provide to teachers, and presentation of the information in a formal meeting. An interactive slide deck and corresponding notes page was created in preparation for the presentation. There were no handouts other than the notes page given at the teacher education session, but handouts and

materials were provided in the Google Drive of all materials related to the program. Finally, the presentation of the information was provided to three classroom teachers as well as 19 total participants made up of OTs, administrators, and the special education team. All goals for the project were met in some capacity by the end of the doctoral capstone experience.

The initial gap analysis showed that there was a gap in the available programs addressing interoception at the elementary school. While the OT on staff desired programs to address interoception and there was an identified need for this type of instruction, there were only a few small group interventions in place with minimal tools and materials. As a result of the doctoral capstone project, the elementary school site as well as the OTs in the district now have access to a 6 session, tier 1 interoception program that can be implemented as is or adapted to meet evolving site needs. As elucidated previously, the pilot of the project was successful in increasing interoceptive awareness in the general education classroom and the program was received generally positively with good facilitators and minimal barriers. While the gap may change and further needs may develop, the gap identified at the beginning of the project was met.

Limitations

This project has limitations to its effectiveness and reproducibility. The program itself has limitations limiting use. Within the elementary, there are minimal limitations due to the personalization to the school. However, as previously explained, time and innovation deliverers are the largest barriers to continued implementation.

While the program was presented to other district employees, there are limitations to implementation outside of the initial elementary school site. The program was tailored for the whole class setting for grades 1-6, limiting the schools and populations the program can be used with. This sentiment was highly apparent when the program was presented to district OTs. While

most of the OTs work at the elementary level, there were also OTs present that work at the preschool and secondary levels. The program as is would not apply to those populations, but since the program is able to be adapted, it could be adapted to work with those ages. Since the main elementary site did not have a classroom for the intensive intervention and alternative diploma program in the district, the intervention was not created with students in that program in mind. This is also a limitation to continued use outside of the main elementary site. Some participants shared positive outlooks on the adaptations needed, such as “[I] will just have to adapt it to [the alternative diploma program students] and to an older group of students!”, while other respondents seemed less interested in adaptations, saying “I am not sure it would work with preschool age”, “I do not think it would be implemented at the preschool except for bits and pieces likely by the OTs”, and “It will need to be modified more for younger ages 3-5, also modifying for various abilities within that younger age range. It is great for all other ages!”. These limitations impact the possibility and success of implementation in different schools within the district.

The research and results from the project pilot are highly limited by the small sample size. While around 50 individuals participated in the pilot, these were children and for ethical reasons, data was not collected directly from them. Since only 2 classrooms were targeted due to time, materials, and the pilot nature, all data have very small degrees of freedom and statistic strength. This limits the conclusions that can be made from the piloted program. Future work in this area should consider alternate ways of data collection or continuing the program in more classrooms.

Impact

While the impact of the pilot program has already been elucidated above, there were also benefits on the site and the profession. School-based OTs usually have a fairly limited scope related to which students they can work with, how long they can work with them, and what they can work on. While these are not hard and fast rules, plans of care are dictated by funding, school structure, and caseload. This project introduced a new way for OTs to be utilized and share their unique skills with the school building as a whole. This impacted the site as they were able to see the benefits of OT acting in the role of providing tier 1 interventions and materials as well as impacting the profession on a local scale. Since the program was also presented to all district OTs, the idea of using OTs as a support for prevention, student wellbeing, classroom instruction, and instructional design was introduced to 15 more OT practitioners. This is a change which would take time to fully develop, but administration and OTs expressed to the capstone student the interest in having OTs filling these roles.

Materially, the site now has access to easy-to-use materials to supplement classroom teaching as well as OT and special education interventions. These materials were freely given to the site for future use and adaptation. The site mentor OT also experienced education in this area through working closely with the capstone student on the project. The site mentor expressed plans to continue small group interventions on this topic following the departure of the capstone student from the site. These materials along with the attitudes towards OTs role are part of the impact of the project on the site.

Conclusion

The elementary school site had a gap related to regulation and interoception interventions. Through this capstone project, the capstone student provided teacher education, a whole class intervention within 2 classrooms, and materials for continued use of the program.

The teacher education session provided was rated as highly effective as shown by quantitative data. The classroom interventions lacked strong quantitative data, but qualitative data showed valued benefits in the classroom. Finally, the materials and the possibility for continued use of the program were assessed using the CFIR and barriers and facilitators were determined. The intervention was determined to be overall positive and barriers to success included structural characteristics and individual characteristics. Overall, the project provided successful interoception interventions to approximately 50 elementary school students with and without special education services, education to 21 staff in various roles, and materials available to be re-used and adapted, all for the overall goal of increasing students' knowledge and self-efficacy of self-regulation strategies.

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Appendix A

IRB Determination

20536 - Not Human Research Determination

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on behalf of

Kuali Notifications <no-reply@kuali.co>

Tue 9/19/2023 5:03 PM

To: Oleshchuk, Oksana <ooleshch@iu.edu>

If you are not responsible for the IU Kuali Protocols submission for this protocol, this is for informational purposes only and no action is required.

NOTICE OF IRB REVIEW NOT REQUIRED

Protocol #: 20536

Protocol Title: Tier I Interception Interventions in the Elementary School Classroom

PI: Wasmuth, Sally

The above submission was reviewed and IU HRPP staff determined the project is not human subjects research and does not require further review.

Please retain a copy of this email in your research records. You will not receive a separate approval letter.

If you have any questions or require further information, please contact the IU HRPP via email at irb@iu.edu or via phone at (317) 274-8289.

Appendix B

Schedule of Interoception Interventions

Monday	Tuesday	Wednesday	Thursday	Friday
Clinical skills at other elementary or deskwork on university campus	12-1:20 pm - One-on-one - 3 students - Self-contained classroom	11:30 am-12:00 pm - Small group (5 students) - 4 th graders	7:45-8:10 am - Whole class - 24 students - General education classroom – 2 nd grade	Clinical skills and deskwork at main elementary school site
	1:30-2 pm - Whole class - 20 students - General education classroom – 4 th grade	12:30-1:00 pm - One-on-one - 6 th grader	8:15-8:35 am - One-on-one - 1 st grade student - Self-contained classroom	
			1:00 -1:20 pm - Small group (2 students) - 1 st & 2 nd grade	

Note: All times not expressly listed were spent advancing clinical skills

Appendix C

Classroom Intervention Quantitative Data

Question Directions	Statement	Pre-test			Post-test											
		Self-contained classroom	General education classrooms		General education classrooms											
“Please rate how much you agree with the following statements for your classroom” <table border="1" style="font-size: small;"> <tr><td>1</td><td>Strongly Disagree</td></tr> <tr><td>2</td><td>Somewhat Disagree</td></tr> <tr><td>3</td><td>Neither agree nor disagree</td></tr> <tr><td>4</td><td>Somewhat Agree</td></tr> <tr><td>5</td><td>Strongly Agree</td></tr> </table>	1	Strongly Disagree	2	Somewhat Disagree	3	Neither agree nor disagree	4	Somewhat Agree	5	Strongly Agree	I have difficulty with classroom management	1	1	2	1	3
	1	Strongly Disagree														
	2	Somewhat Disagree														
	3	Neither agree nor disagree														
	4	Somewhat Agree														
5	Strongly Agree															
I rarely have a calm day in my classroom	4	1	2	2	3											
I deal with behavioral issues in my classroom	2	4	4	4	4											
The strategies I provide for emotion regulation in the classroom are successful	4	4	3	4	3											
I have a toolkit of strategies to use when my students seem dysregulated	1	5	2	4	4											
“How many of your students in your classroom do you think...” (behaviors showing good interoception)	Know when they need to go to the bathroom	51-75%	75-100%	75-100%	75-100%	75-100%										
	Know when they are hungry or thirsty	26-50%	75-100%	75-100%	75-100%	75-100%										
	Know when they are sick	51-75%	75-100%	75-100%	51-75%	75-100%										
	When they are sick, they know what part of their body feels bad	26-50%	51-75%	75-100%	51-75%	75-100%										
	Feel safe in their body	26-50%	75-100%	75-100%	51-75%	75-100%										
	Know when they need a break	1-25%	26-50%	75-100%	51-75%	51-75%										
	Know how to make themselves feel better when they are uncomfortable	1-25%	26-50%	51-75%	26-50%	51-75%										
	Know what emotions they are feeling	1-25%	51-75%	51-75%	51-75%	75-100%										
	Know how to address emotions they are feeling	1-25%	26-50%	51-75%	26-50%	51-75%										

Question Directions	Statement	Pre-test			Post-test	
		Self-contained classroom	General education classrooms		General education classrooms	
“How many of your students in your classroom do you think...” (behaviors showing poor interoception)	Have emotional outbursts in class	75-100%	1-25%	1-25%	1-25%	1-25%
	Cry seemingly randomly in class	51-75%	1-25%	1-25%	0%	1-25%
	Overreact to situations (ex. Crying when a pencil breaks, etc)	75-100%	1-25%	1-25%	1-25%	1-25%
	Underreact to situations (ex. No reaction to bad news or an injury)	26-50%	0%	0%	1-25%	1-25%
	Eats to the point of feeling uncomfortable or sick	0%	1-25%	0%	1-25%	1-25%
	Seems to not be in pain in a situation where they should feel pain (ex. a hard fall)	0%	0%	0%	1-25%	1-25%
	Seems to be in a lot of pain in reaction to a small injury (ex. paper cut)	51-75%	26-50%	1-25%	1-25%	1-25%
	Report feeling sick more than twice a week	51-75%	1-25%	1-25%	1-25%	1-25%
	Have issues with emotion regulation	75-100%	51-75%	1-25%	1-25%	1-25%